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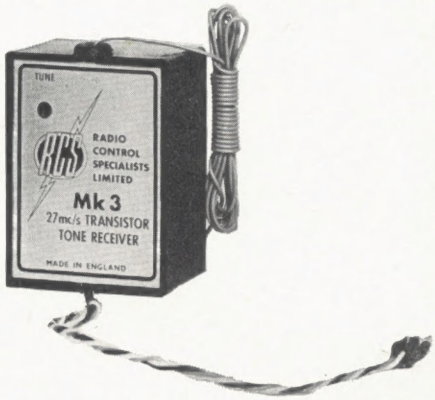

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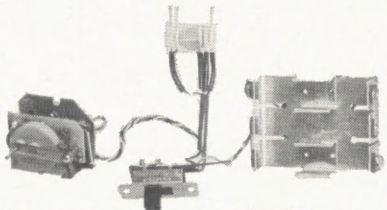

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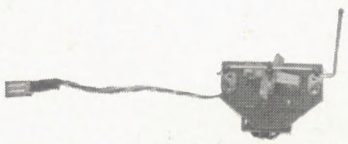

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1/25 Rommel (Jagd Panther)	128/–	99/11
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1/35 Hunting Tiger ...	59/11	45/–
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1/35 Panther	59/11	45/–
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Motors: MF25, 4/6; MF35,		4/11
German Tank Crew		5/–
German Infantry Soldiers		5/11

1970 CAR SENSATIONS !

1/12 Lotus 49B 79/11

And for release this month

1/12 Matra	79/11
1/12 STP Turbine Car	126/–
1/12 Lotus 49	79/11
1/12 Honda F1	75/–
1/12 Lotus 49B	75/–
1/12 Porsche Carrera 10	126/–
1/16 Alfa Scarabeo	79/11
1/16 Ford GT40	75/–
1/16 Honda F1	59/11
1/16 Jaguar Piranha	59/11
1/18 McLaren M8	59/11
1/18 Nissan R381	59/11
1/20 Ferrari P5	59/11
1/20 Lamborghini Marzal	59/11
1/20 Mustang Mach I	72/6
1/20 Toyota 7	39/11
1/20 Ferrari 275 GTB4	29/11
1/24 1930 Bentley	39/11
1/24 1931 Alfa Gran Sport	39/11
1/24 1937 Cord	39/11
1/5 Wankel Rotary Engine (See-through working model)	59/11
1/10 Honda RC162 M/cycle	44/11
1/12 Honda Police M/cycle	23/11
1/12 Yamaha Twin 90	15/3
1/12 Suzuki A90	15/3

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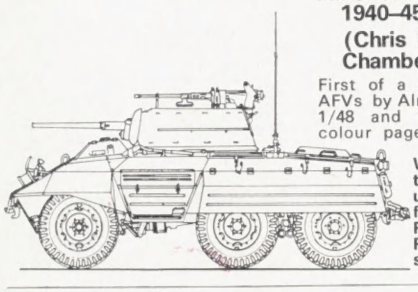

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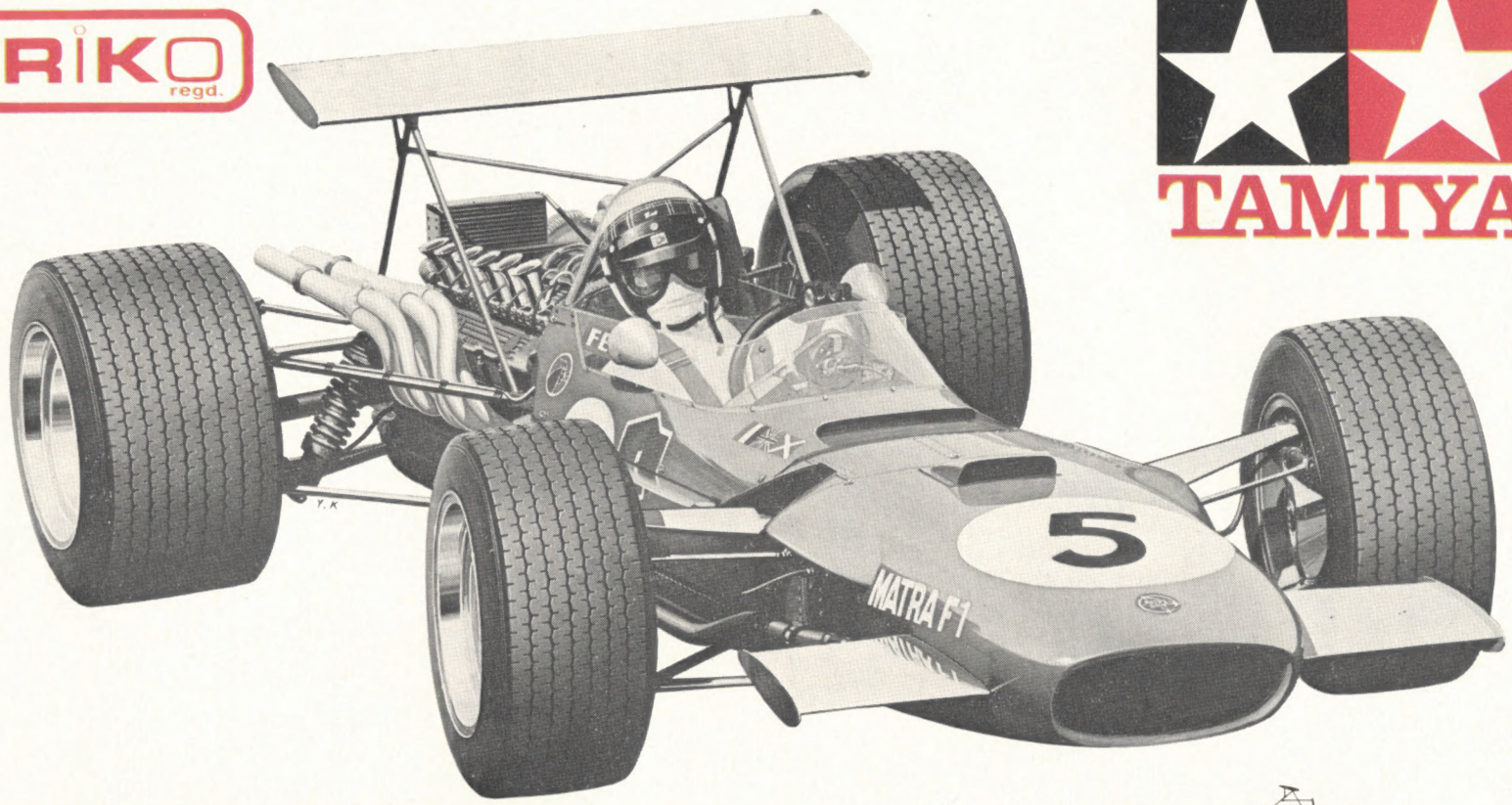

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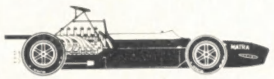

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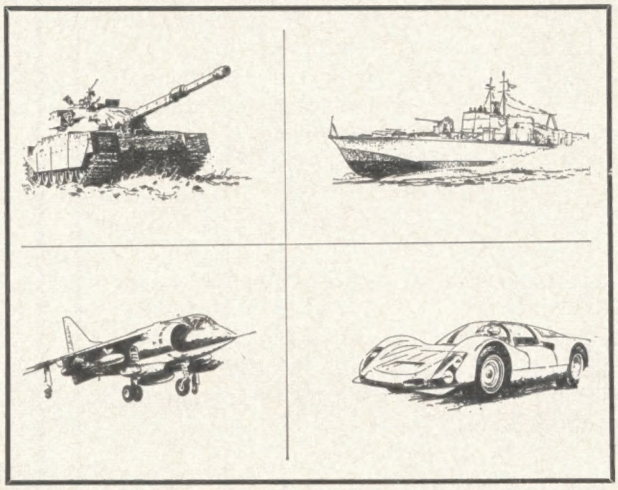

on the cover

The Tamiya 1/21st scale Tiger 1 tank which is the subject of a review on page 310. Full internal detail, torsion bar suspension, separate track links, crew and exceptional moulding make this a 'kit of the year'. The ¾in. scale Gee Bee Super Sportster flying scale rubber powered model is selected as one of the most popular of the famous 'Cleveland' range of plan sets, from a company which has just celebrated its 50th Anniversary in the Model business – see page 300.

next month

The Avro Lancaster is the subject of Les Hunt's 'Vintage Scene'. NATO markings are explained and illustrated. 1/32nd scale drawings and data for modellers of the best known London Taxi cab, the Austin FX3. Latest on miniature figures. Conversion feature. Reviews of the new kits, including Protar Motor Cycle. Marine plan; out on February 13th.

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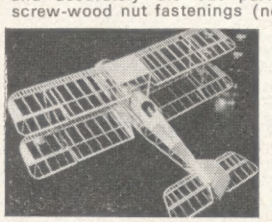

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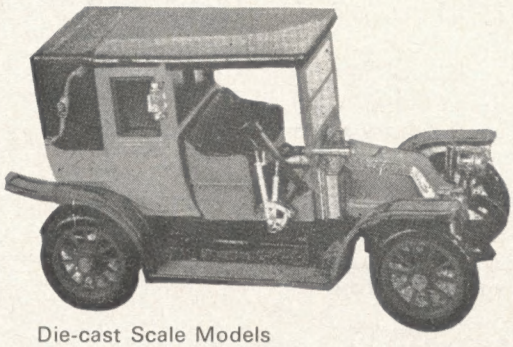

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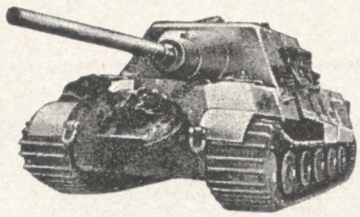

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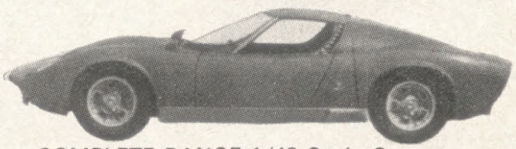

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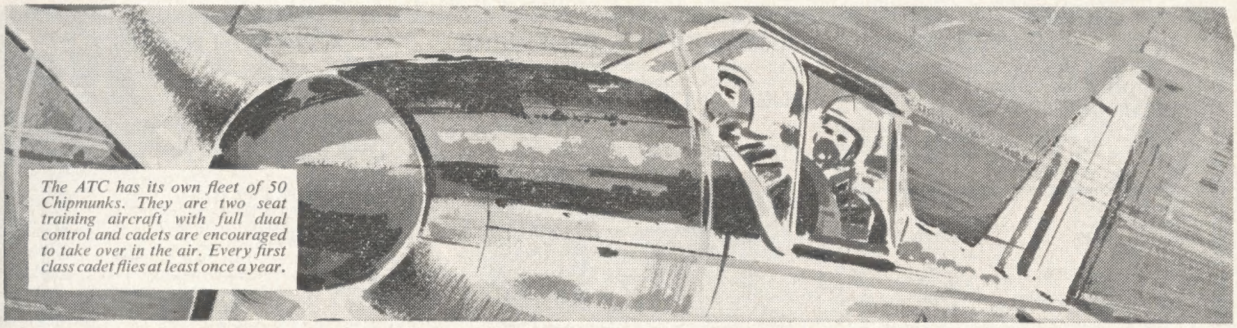

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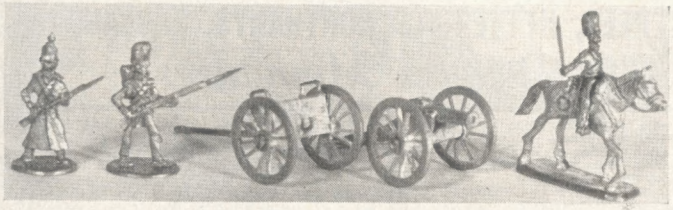

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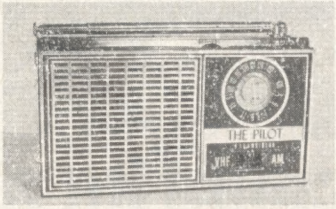

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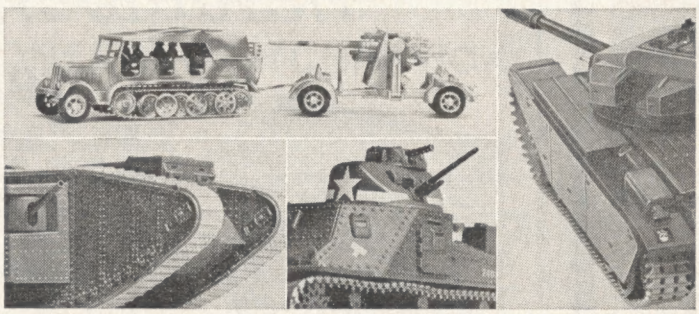

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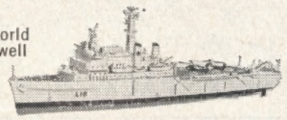

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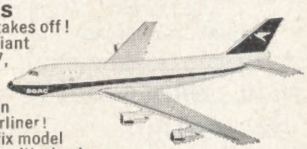

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FAIREY FULMAR and FIREFLY

– where to find them

Top, the Mk. 1 at Skyfame Museum, when in its target towing all-yellow fresh from Sweden. It is now painted in authentic operational colours. Below is SE-BRG, still languishing under wraps at Arlanda, Stockholm, also a target tug.

ALTHOUGH it did some useful work in World War II, the Fairey Fulmar did not achieve the production totals of the better-known Firefly, and it may not be generally known that – like the Fairey IIID – the Fulmar, in the initial production, was planned to be either landplane or seaplane. One example exists today, Fairey Fulmar I serial N1854 (which became G-AIBE) and which first flew on 4th January, 1940, from Ringway, now Manchester Airport. Presently kept at the Royal Naval Air Station, Lossiemouth, the Fulmar is earmarked for the Fleet Air Arm Museum at Yeovilton and, when displayed there will at last be viewable by many more enthusiasts than have been able to make the long journey to Scotland for Annual Air Days.

The Fairey Firefly first appears in Bruce Robertson's splendid 'Military Serials' at Z1826–2126 and we are indeed fortunate in this country to have one of this initial batch, Z2033 (c/n F5607). This is a Mk. I, later SE-BRD, flown into Staverton to join the *Skyfame* Museum as G-ASTL, thanks to a generous donor who wishes to remain anonymous, though most enthusiasts, given three guesses, could name him. Whether Z2033 took part in the attacks on *Tirpitz* I know not but the records indicate the participation of the type in July and August, 1944, flying from the carrier *Indefatigable*, 51 Fireflies being airborne in formations of from eight to twelve machines on the various occasions.

Post-war, the Firefly distinguished itself with the Royal Australian Navy in Korean waters and, in addition to the FR4 serial VH127, which was converted to a TT4, and is now at RNAS Culdrose, Cornwall, the Fleet Air Arm Museum has a magnificent example in WB271, an AS5 donated jointly by officers of the Royal Australian Navy and our own HMS *Victorious* purchased from Bankstown, Sydney and brought to England aboard *Victorious* in 1967. The identity letters 'R' and 'K' represent HMS *Glory* and HMAS *Sydney*, and Korean markings are worn.

Elsewhere in Europe one must go to Sweden where, at the Malmo

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Les Hunt apologises for mixing the Skyfame Mossies up last month. It was G-ASKC (TA719) which was damaged (now said for sale), and G-ASKA (RS709) which *has* been sold, though still at Staverton. Code letters SY-G (613 City of Manchester) Sqdn AAF not *SW*-G were carried by TA719.

At Royal Australian Navy base Nowra (hence the fin letters NW as below), this AS6 is a permanent Gate Guardian kept in pristine order, serial WJ 109. A total of 1702 'Fireboxes' were made.

Right, sole surviving Fulmar, stored at R.N.A.S. Lossiemouth and carrying the correct camouflage. Note forward position of the tailplane in relation to the fin and rudder. (Newark Air Museum photograph.)

Technical Museum is Firefly SE-CAW from *Svensk Flygtjanst*, and at Stockholm's Arlanda Airport, standing in the open for some years, partially covered, SE-BRG. Both machines are 1944-built and it would be interesting to get their construction numbers and to trace their original serials and histories (likewise for the others at Skyfame

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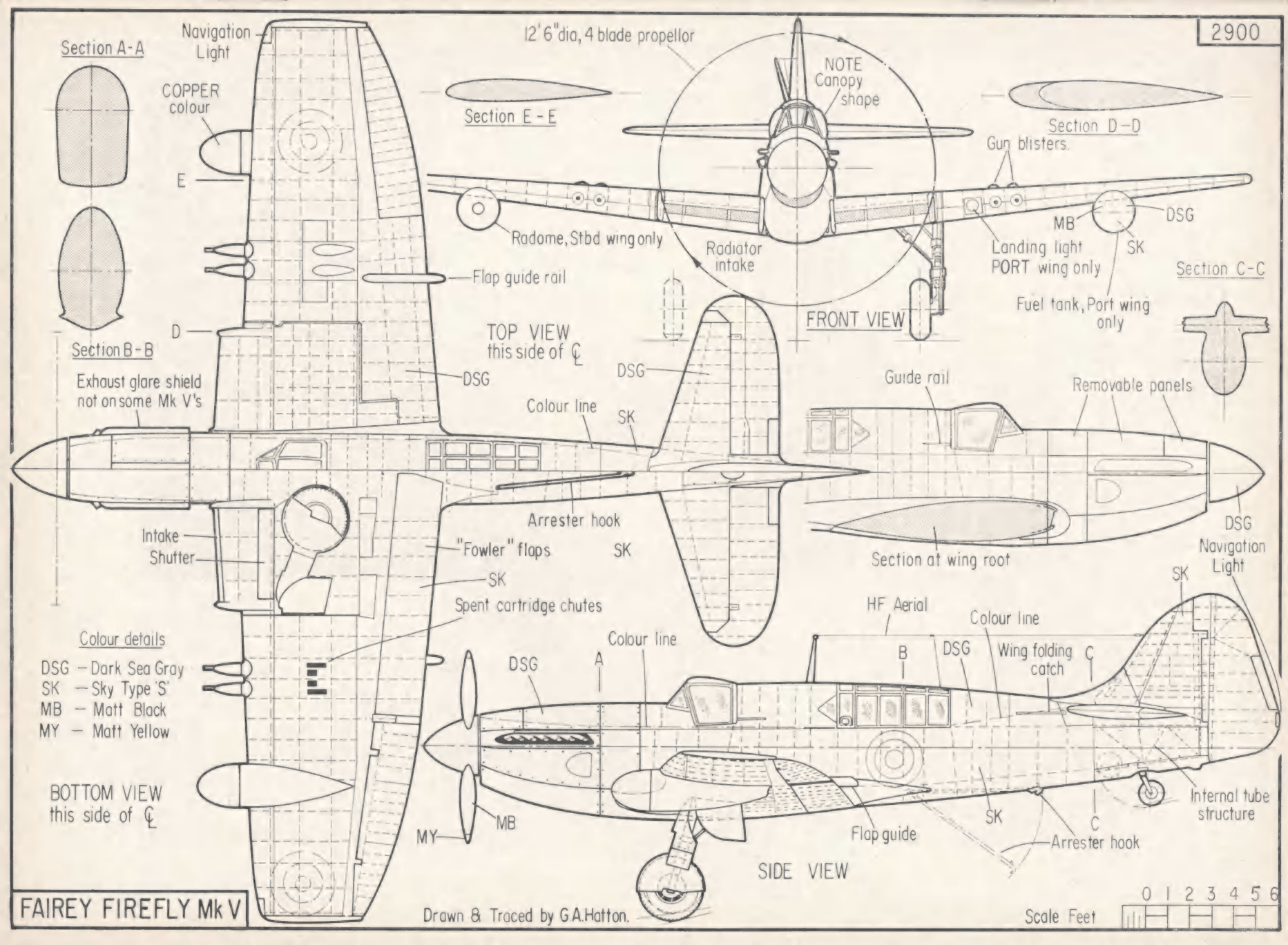
Tom King's Mk. 6 above, missing its rudder, tail wheel and instruments is WD833, currently being restored for preservation. At right is AS(TT6) at Griffith in New South Wales, where it poses by a roadside breaker's yard at the Returned Serviceman's League H.Q.

and Culdrose). But we must move on now to Thailand where, in the Bangkok Museum is a Mk. I serial MB410, c/n F7402, painted midnight and pale blue, with red spinner.

It is said there has been an example also at Cochin Airport, India, but the informant was not allowed close (in 1968) and confirmation would be valued. It is to Australia we must go for the real 'finds', commencing with the splendid Moorabbin Air Museum in Victoria. Here we find the TT.6 serial WD828, actually flown into the museum in February, 1967, and formerly at RAN, Nowra. NSW, with Nos. 723 and 851 Sqdns. as operational trainer and target tug, later at Avalon, Victoria, for target towing and radar tracking over Flinders Naval Depot. Retired in March, 1966, it was obtained from the Dept. of Supply and Terry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TOP VIEW this side of ℄
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MB
DSG
SK
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Section C-C
DSG
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SK
Guide rail
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Arrester hook
Intake
Shutter
"Fowler" flaps
SK
Spent cartridge chutes
Section at wing root
DSG
Navigation Light
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C
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DSG – Dark Sea Gray
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MB – Matt Black
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BOTTOM VIEW this side of ℄
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C
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SIDE VIEW
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Above, at Moorabin, Victoria, is WD 828 with its Nowra code letters replaced by a fuel advertisement. Flying horses also appear on engine cowl and wing tanks. Right, is the Firefly at R.N.A.S. Culdrose, Cornwall. Serial is VH 127 and it is a TT4 (Admiralty photo).

Brain (who normally flies the Brain & Brown Mk. I Anson MH120) piloted the Firefly from Bankstown.

Before moving round into New South Wales we pay a brief call at the home of Tom King, renowned pioneer of New Guinea 'finds' and who currently has a Zero, Sabre etc. (of which more in later articles). Here, at Preston, Victoria, he also has Firefly AS.6 serial WD833 ex 817 Sqdn. HMAS Sydney and 723 Trg. Sqdn., Nowra, under restoration. Our next call will be at Bankstown where, on my last check, Firefly AS.5 VX388, once said to be coming to H.A.P.S., Biggin Hill, was standing in the open. It may now have moved elsewhere. At the Camden Museum of Aviation is the AS.6 WH632, once with the Marrickville Air League after RAN service and now beautifully maintained. At Griffith's Returned Servicemen's League HQ is AS.6 serial WD901, and at the entrance to the RAN base at Nowra, NSW, stands AS.6 WJ109 and that completes the Australian-based Firefly locations so far as the writer is aware. The AS.6 serial WD840 is said to have left for Carmon, Manitoba, Canada, to join Bob Diemert's growing fleet of Zeros, a Val etc., of which more details when illustrations are received. So, to sum up, it seems we have one Fulmar and thirteen examples of the Firefly in existence, with a possible fourteenth if the Cochin report is confirmed. We are indeed fortunate that three are in England along with the Fulmar to keep alive the magnificent contribution to aviation of Sir Richard Fairey and his workers.

In addition to the TT4 at Culdrose (above), the Royal Navy has WB 271, an AS5 ex Australia, seen at left in its original target towing stripes. Note the 'sideways on' underwing roundel, same aircraft now at R.N.A.S. Yeovilton as below.

Brought to the U.K. on H.M.S. Victorious in 1967, and repainted in Korean campaign identity markings, WB 271 was one of the last six Mark 5's put up for disposal at Bankstown. Still in flying condition it was purchased for £160 by R.N. Officers and repainted en route to the U.K. while at Sembawang.

SPITFIRE INSIGNIA

Notes on 60 and 28 Squadron aircraft

by J. D. McHard

SOME recent press correspondence, and the publication of an incorrect 60 Sqdn. colour reference, prompted me to dig out a number of negatives which I exposed during service in A.C.F.E. (Air Command Far East) and later F.E.A.F. (Far East Air Force) between 1948 and 1950.

Many of these negatives have never before been printed – even by myself – since upon development they were considered to be of inadequate quality. However, now, some 20 years later, and from a purely record point of view, they are extremely interesting, and perhaps this fact will offset, to some extent, their technical shortcomings.

When I joined 60 Squadron at Sembawang (Singapore) they shared the station with 28 Squadron, both units being equipped with the Spitfire 18 FR (Fighter Reconnaissance). Main preoccupation was the war against the communists in Malaya, and this involved cannon, rocket and bombing missions in addition to photo-reconnaissance and survey. Two Spitfire PR19s belonging to 81 Sqdn. were based at Kuala Lumpur. At this time the latter aircraft were natural aluminium finished and the 18 FRs were grey and green camouflaged.

The 60 Squadron machines all had distinctive *black* and *yellow* stripes just behind the spinners. The colours being associated with the unit's earlier service in Burma and India and the markings were locally referred to as '*Tiger Stripes*'. 60 Sqdn. Spitfires carried no other stripes of any other colour and references to red and yellow, or white and black stripes are definitely inaccurate. The photograph shows 60 Squadron Spitfires at No. 27 APC (Armament Practice Camp) in Northern Malaya, where they were detached in March, 1949. The blunt ended rockets were headed with white concrete for target practice purposes, and the propellant tubes were dark green. Prop. spinners were all black.

60 returned to Sembawang, stopping off for a short spell in Kuala Lumpur on the way, and shortly afterwards, around June, 1949, the two squadrons were separated when 28 was posted to Kai Tak in Hong Kong when the colony was threatened by the Chinese War. Many were the interesting aircraft that buzzed in and out of Kai Tak during this period.

At the same time, of course, the Korean War was in full swing and regulations required the painting of black and white stripes around the rear fuselage and wings as an identification aid. 'These bands were hastily painted in the field' and were of varying accuracy depending upon the skill of the particular brush-wielder. The 28 Sqdn. bands were always painted *over* the serial numbers, but on some of the 80 Squadron Spitfire 24s (which later joined 28 Squadron at Kai Tak) the numbers were repainted over the stripes in reverse colours – white numbers (or parts of numbers) on the black stripes and vice versa. Perhaps these Korean War stripes were the cause of the confusion in some people's minds over the 60 Squadron nose stripes.

Top photo shows 60 Squadron nose stripes. Below is 28 Squadron, with partial stripping of paint from cowl panel on 'F'. Close-up of fin insignia and quartered spinner at right.

4 different roundel types, sizes or positions on 28 Squadron Spits landing at Hong Kong. Top right is aircraft 'C' with natural metal fuselage, camouflaged wings.

At Kai Tak, a healthy inter-unit competitive spirit resulted in the two 28 Sqdn. flights (A & B) identifying themselves by distinctive spinner colouring. Some were initially 'quartered' in red and white, others were similarly treated in blue and white. As replacement machines arrived, this scheme, which was time-consuming to apply, gave way to one-colour spinners of either royal blue or bright red.

A forward base at Sek Kong, quite close to the actual Hong Kong/China border, was at this time being bull-dozed out of the paddy fields by the Army, and 28 Sqdn. moved in to occupy the primitive but convivial tented accommodation and take over the P.S.P. (Perforated Steel Plate) airstrip.

Flying accidents were numerous and as replacements were flown in from various sources to maintain squadron strength, the aircraft took on an increasingly bizarre appearance. Every new arrival seemed to present some new colouring and marking permutation of big roundels – small roundels, broad white rings – narrow white rings; yellow outer rings – no yellow outer rings; green and grey camouflage – brown and green camouflage; the variety was endless!

There was still insufficient dope, skill or time to repaint all the aircraft in a common scheme – besides – what of future unspecified arrivals? So it was decided to strip the paint and revert to natural aluminium alloy finish. The existing roundels were not repainted but simply masked out, thus still leaving some considerable variation in style.

The stripping operation was a genuine all-hands-to-the-wheel performance, and one of my photos shows the Commanding Officer, Squadron Leader Yule, in shirt and braces, scrubbing brush in hand and paint stripper everywhere!

Squadron readiness precluded the possibility of taking machines out of service specifically for colour changing so the stripping was done in between flights and during minor routine servicing. This meant that quite a lot of flying was done with machines semi-painted and in one photo Spit 'C' is seen with natural fuselage and doped wings. The Korean Stripes were not replaced when the dope was removed, but in some instances the outer black stripe under the wings which was painted over the inner end of the aileron was not removed. Identification letters on the silver Spitfires were black.

One particular machine which is worthy of note was Sqdn. Ldr. Yule's personal Spit, which was maintained in immaculate condition. Camouflaged in dark earth and dark green, it never carried Korean Stripes and the identification letter 'A' was in a very distinctive black shadowed silver style, also shown in the photo below.

Completely stripped at left, 18 FR's of 28 Squadron Sek Kong. Right, is the unblemished Commanding Officer's personal mount.

ONCE UBIQUITOUS WHEREVER SERVICE AIRCRAFT WERE TO BE FOUND, BUT NOW A RARE DERELICT YIELDS A SIMPLE SUBJECT FOR AIRFIELD SCENES

R.A.F. TOWED BOWSER

1/72nd Scale Model designed and built by John Pell of I.P.M.S.

Top view shows right-hand side detail – the various dials and pump gear at the rear side of the bowser can be made from scrap sprue and plastic card, etc. Front end section is clear (above), filler and feed detail below. Photos by 'Red' Dack.

THE LOCAL – Lincoln – branch of I.P.M.S., having been asked to make a model of a typical fighter airfield for display locally in conjunction with the recently released film *The Battle of Britain*. We were most fortunate to receive from fellow member 'Red' Dack drawings and photographs of this vehicle which he spotted lying apparently derelict in a field. 'Red', scarcely able to believe his eyes, dashed many miles home to pick up his camera, tape measure and masses of paper, hastened back to photograph and measure the bowser before it 'disappeared' again.

From his detailed sketches and measurements the model, which is the subject of the accompanying drawings, was made.

This looks well either mounted – as seen here – in its own right as a display model or can be used to add atmosphere to a model airfield.

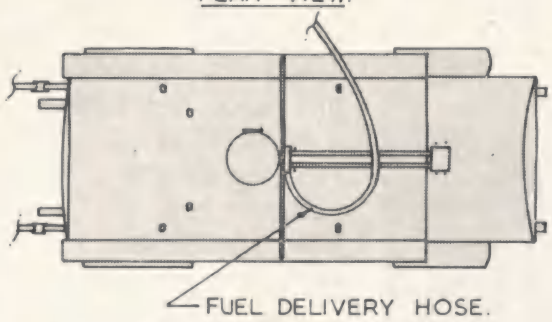
These towed bowsers were in general use from 1939 until quite late post-war and no airfield would have been complete without at least one parked in the re-fuelling area or on the hard-standing dispersals etc.

Colour details are quoted on the drawing, the wartime ones were usually very scruffy and considerably stained around the filler caps by aviation spirit, but many seen post-war were maintained in a far more pristine fashion – Bob Jones recalls that those at Finningley in 1948/9 were actually wax polished for an A.O.C.'s inspection!!, how-

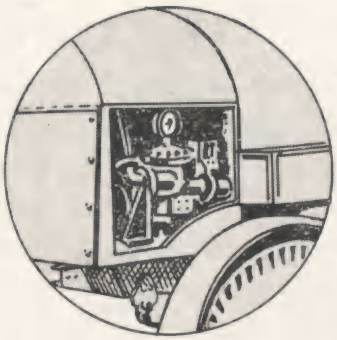
Left-hand view of model shows refuelling pipe. This can be made from rubberised or plastic tube as used to cover electrical wiring, etc.

WITH ACKNOWLEDGEMENTS TO "RED" DACK WHO PROVIDED DATA FOR THIS DRAWING.

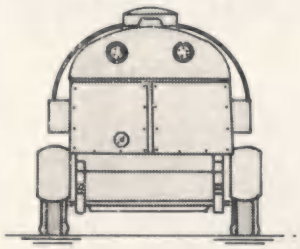
PLAN VIEW.

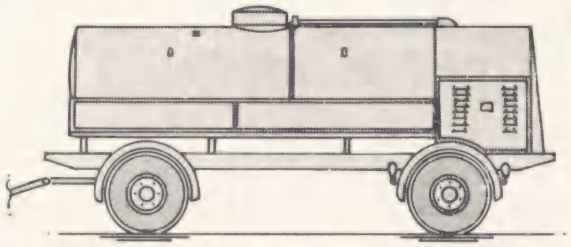


PUMP DETAIL

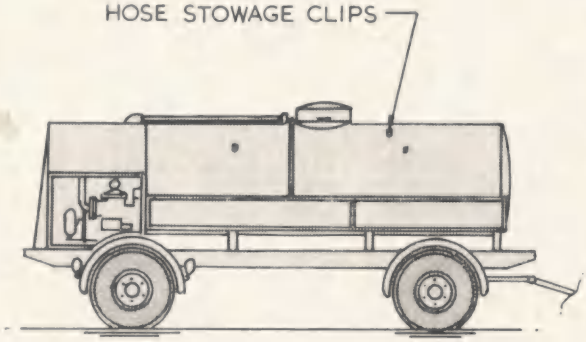


PUMP END

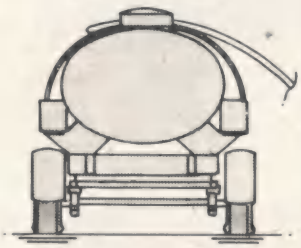




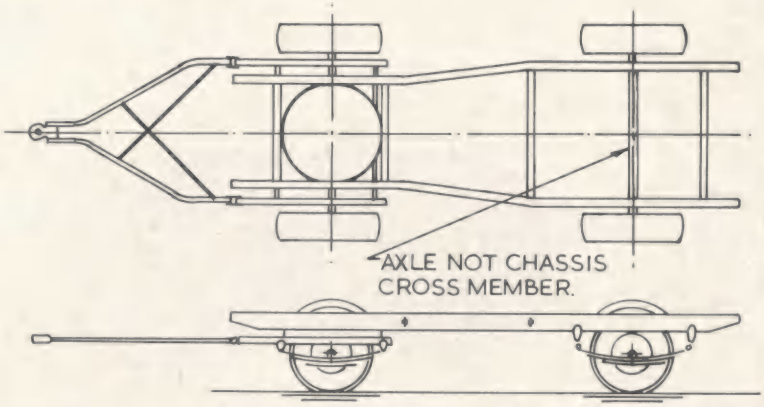
HOSE STOWAGE CLIPS



TOW BAR END.



SEPT.'69 J.H.Bell



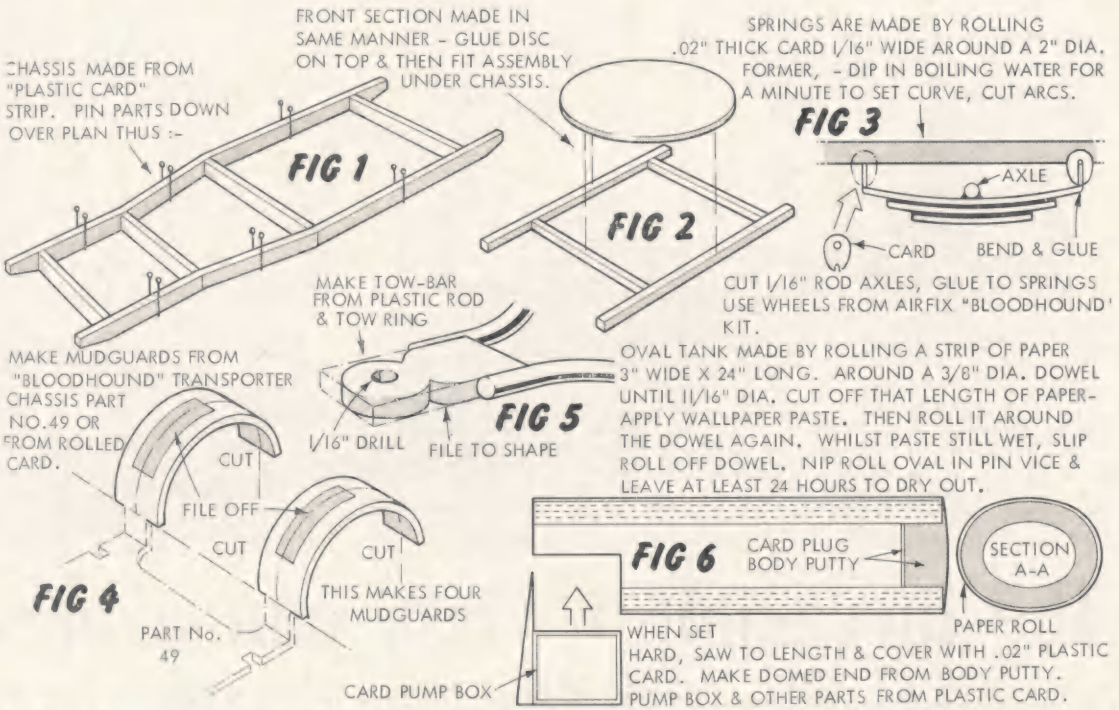
CHASSIS DETAIL - NEARSIDE WHEELS REMOVED.

R.A.F. TOWED BOWSER

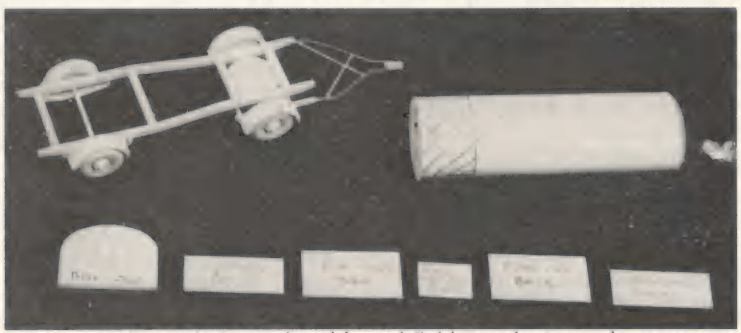
SCALE: 6FT. TO 1 INCH. 1/72.
IN USE FROM 1940 ONWARDS.
TOWING VEHICLE EITHER, Q.L. TRUCK, TRACTOR OR EVEN Q.L. BOWSER. — ARMY QUAD ALSO USED ON MALTA.

COLOURING:-

1. U.K:- DARK EARTH OVERALL. ONLY POST 1945 HAD YELLOW TANK TOPS. SOME REPAINTED BLUE-GREY WITH YELLOW TOP.
2. MIDDLE EAST:- MID-STONE OVERALL. MOST WERE VERY DIRTY & FADED.



Secondary stage of assembly of the various component parts for this model. Note the towing bar and crosspieces made from heated stretched sprue. Wheels from AIRFIX Bloodhound Guided Missile kit. The wood former for the tank should be kept for use with future conversion models – we used plastic card as described for this part, but one could just as easily carve the tank from solid wood, smooth and paint in the required colour.



ever, in model form they look far better when finished in matt paints and somewhat 'dirtied'. Towing vehicles ranged from the early type of Fordson tractor (another useful model on any miniature airfield) or the later David Brown tractor as supplied in the Airfix kit of the Short Stirling bomber. Almost any of the soft-skinned trucks as used by the R.A.F. can be used as alternative towing vehicles such as the Matador, Q.L.'s, Austins and Bedfords . . . most of these, at least in wartime, were dark earth overall or dark earth with black patches of camouflage and post-war, R.A.F. blue-grey with yellow tops to the cab and sometimes also the bonnet of the truck(s).

If this little model should prove popular with readers then we will consider making further drawings and models of similar airfield equipment, however, if any readers have any photographs or data on such items as the 'Chance Light', 'Pundit' and other beacons, also 'Trolley Accumulators' (the latter being an absolute necessity for a fighter airfield layout) such details would be most welcome c/o the Editor.

Completed model being 'towed' by the David Brown Tractor as provided with the AIRFIX kit of the Short Stirling. However, many other towing vehicles were used, including earlier Fordson tractors, 15 cwt. Trucks and – on Malta – Army 'Quads' (this can be made from that provided in AIRFIX 25 lb. gun kit – paint the vehicle overall Stone, then over this, apply a very fine crazy-paving pattern in dark brown paint. Bowser on Malta was painted Stone overall, though some were seen in Dark Earth.

The incredible K Class Submarines

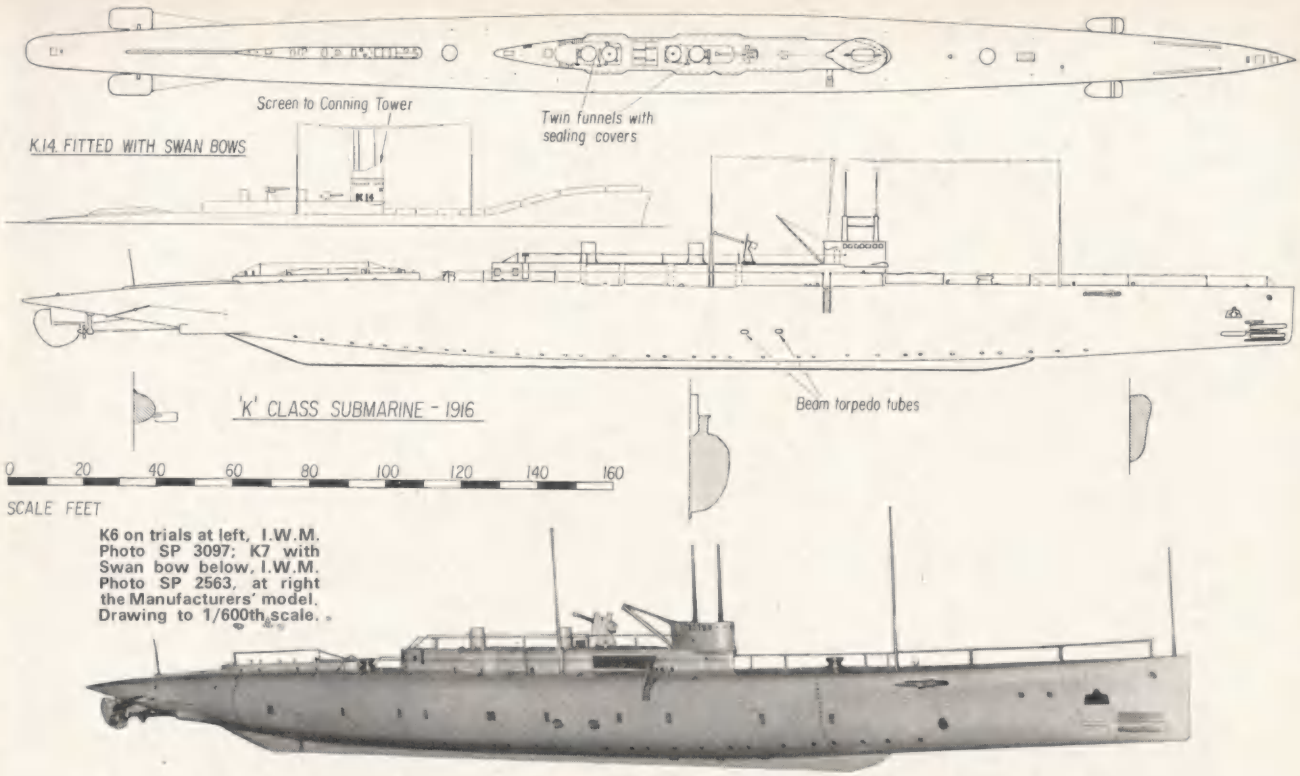
Story plus model feature on the Steam powered monsters by Graham E. Dixey

FASTER THAN ANY other submarine of World War 1, as long as a contemporary destroyer and revolutionary in concept, the design of the **'K boats'** was laid down in 1915. They were fated, however, and their story is one of mishap and calamity and grievous loss of life, not in action against the enemy but on trials and exercises safe from the threat of enemy guns and depth charges, but not from the weaknesses of the design itself. They were hated or loved, but mostly they were hated, and it is not without reason that those who served in them were referred to as *'the suicide club'*.

Why were they brought into being and what prompted such an idea as that of putting funnels into a submarine?

There are a number of reasons. First, it must be realised that at the outbreak of World War 1, the British submarine service was in rather a sorry state, being poorly equipped and neglected by those who believed that the use of submarines was really a thoroughly 'un-British' action! Secondly, the Germans had from the start emphasised the dramatic role of the submarine when in the months of September and October the U-boat U9 sank the cruisers *Aboukir*, *Hogue*, *Cressey* and *Hawke* with the loss of 2,000 lives. As a result, panic reigned in the Admiralty, and Churchill, then First Lord of the Admiralty, wrote to the First Sea Lord in urgent terms on the subject of the British submarine programme. To add weight to the urgency of the situation came various rumours which hinted at the German submarine strength being greater than our own. Figures varied considerably, but it seemed certain that, while we had only 17 submarines capable of penetrating beyond our own coastline, the enemy had a large number of vessels with a range of the order of 3,000 miles. Obviously something of a dramatic nature had to be done.

But why steam engines? It seems that in 1913 the firms of Vickers and Scotts had been asked to produce an Overseas design of submarine. Apart from size, Vickers' ideas were fairly conventional, but



K6 on trials at left, I.W.M. Photo SP 3097; K7 with Swan bow below, I.W.M. Photo SP 2563, at right the Manufacturers' model. Drawing to 1/600th scale.

Scotts, unable so they said, to guarantee the reliability of the Italian Fiat engines, proposed steam as the means of surface propulsion. As a result of these proposals, one boat was ordered from each firm, the steam-driven vessel from Scotts to be called *Swordfish*. Also, in the Spring of 1913, Sir Eustace Tennyson-d'Eyncourt, then Director of Naval Construction, produced a design for a steam-driven submarine of 338 ft. in length, but after model tests the design was shelved.

Lord Fisher, taking the office of First Sea Lord in October 1914, with great zeal ordered a number of conventional submarines to fill the gaps in the submarine service. One might have thought that this remedy would call a halt to the panic, but no sooner had this measure been taken than a new emergency arose necessitating a complete review of the situation. Reports began to come in that the German submarines were capable of far higher surface speeds than our own, the figure of 22 knots being cited in one instance. Now d'Eyncourt was directed to design a submarine with a surface capability of at least 20 knots. The essence of his reply was that steam propulsion would be necessary since existing diesels simply weren't thought to be capable of allowing this requirement to be met. However, at this time, Lord Fisher couldn't accept the idea of steam power for submarines and plans were put in hand to produce a diesel powered submarine with a 21 knot capability by using three 12-cylinder diesels of the type employed in the proven **'E Class'** submarines. The new submarine was to be known as the **'J Class'**. At this stage it must be pointed out that there was yet another compelling reason for having submarines of such high surface speeds. Strange as it may seem to us now, there existed in the minds of many flag officers of the day, the thought that submarines should operate as integral units of the Battle Fleet rather than as lone wolves. Since the usual fleet speed was 21 knots this dictated the requirement for the 'Fleet submarines' to be able to realise this figure also. The 'J Class' boats were certainly intended to be used in this manner.

Then the blow fell! Early in 1915 it was reported to Lord Fisher that it was not expected that the **'J Class'** would after all be able to meet the required performance. It was urged upon him that a minimum of 21 knots was vital. Vickers then submitted a design for a steam-driven submarine and d'Eyncourt's 1913 design was dusted off and brought out. Both were studied and found to have points in their favour. Under pressure, Lord Fisher gave in; he had little alternative but he did make the suggestion (which was adopted) that an auxiliary diesel be fitted as well. This meant the new submarine would have *seven* power units in all – two steam turbines for normal surface propulsion, one diesel as standby, and four electric motors for use when running submerged. The armament was to comprise three guns and ten 18 in. torpedo tubes; of the latter four were in the bows, two were on each beam and two were fitted in the funnel superstructure for use on the surface at night. Four boats were ordered immediately, two from Vickers and two from Portsmouth Dockyard; the estimated cost was £300,000 per boat.

And so the **'K Class'** arrived. In May 1915 ten more were ordered, three from Vickers, three from Naval Dockyards, two from Armstrong-Whitworth and two from Fairfields on the Clyde. Those already sceptical of the new class may have felt their pulses quicken when they heard of the experiences that Commander Layton was having with the *Swordfish*. Severe condensation after diving was causing short-circuiting of the main switchboard; also the cramped space of the boiler room had resulted in severe burns for several crew members due to flashbacks and other causes. A tendency to roll over when trimmed down for diving was discomfiting to say the least; all in all it was an omen for the future.

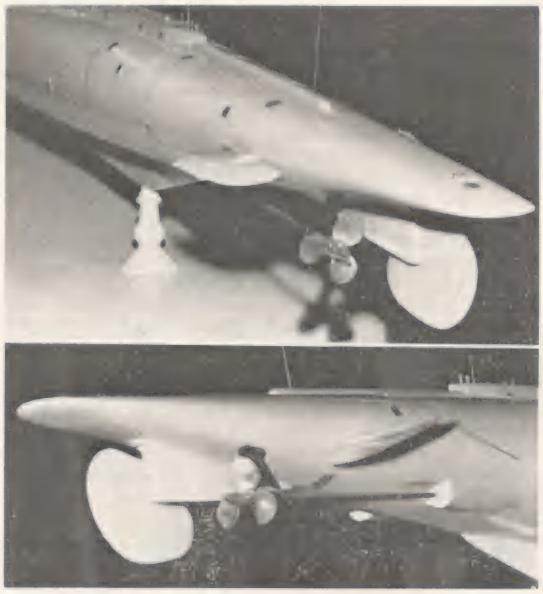
From the day that the first of

the **'K boats'** was launched, till the day the last was scrapped the story is one of trouble and tragedy, of minor misadventures and major disasters. Unfortunately, space does not permit more than a brief mention of two of the more serious accidents but readers who find the story of these ill-fated craft interesting are recommended to read Don Everitt's excellent book *The K Boats,* published by Harrap, in which all the grim facts will be found in considerable detail.

One of the minor, indeed commonplace, incidents overtook the first of the class to be launched which was **K3.** With the future King George VI on board she was to run submerged in Stokes Bay. It was while being trimmed down that she suddenly put her bows down and dived into the mud, leaving her stern sticking grotesquely in the air, screws spinning wildly. She extricated herself twenty minutes later. There was sometimes a lighter side too, for the same vessel acknowledged Beatty's flagship on joining the Grand Fleet at Scapa Flow by dipping her funnels!

As a grim contrast, the first major accident concerned **K13** on her trials in the Gareloch. She had achieved 23½ knots in the speed test and had dived twice. She was to make a further dive after lunch when her acceptance would then be a matter of course. After 'diving stations' had been ordered her funnels were retracted and the openings sealed off. All but four tanks were flooded and **K13** was on her way down. Unfortunately, at this time there was some confusion as to whether the boiler room vents were shut although it was thought at the beginning of the dive that they were. However, such was not the case for it was soon noticed that water was pouring in through these vents and flooding the boiler room. At this moment the four remaining tanks had just been flooded. The order to surface was given, the forward tanks were blown and the forward keels dropped, but she continued to go down and finally settled on the bottom in about eight fathoms. Inside the submarine watertight doors were closed but some of the bulkheads collapsed under a pressure for which they had never been designed, and many men were drowned immediately. It was not realised until later in the day that **K13's** dive was anything other than normal, but when this fact was appreciated, rescue vessels were called up and two of them grappled with a cable and confirmed **K13's** position. The captain of **K13,** Lieut. Cmdr. Herbert conferred with Cmdr. Goodhart, the captain of **K14,** about the possibility of Goodhart escaping via the conning tower so that the surface vessels could be told the full situation as it existed in **K13.** A plan was arrived at whereby, by the use of high pressure air Goodhart, assisted by Herbert, would make his exit through a hatch in the roof of the wheelhouse; unhappily, the plan misfired and Goodhart, becoming trapped under the wheelhouse roof, was drowned while, ironically but fortuitously, Herbert was accidentally blown clean out through the same hatch which Goodhart had hoped to use! This was now mid-day the following day, but it was to be a total of 57 hours before the survivors of the submarine were finally rescued. In the end, the rescue was effected by raising the bows of **K13** in a rope sling between two of the rescue ships and cutting a hole in her bows through which the men were pulled. Of the 80 men who were on board when she went down, only 47 survived. **K13** was eventually raised and refitted as **K22.**

It was at the end of January 1918 that the disastrous train of events known as the *'Battle of May Island'* occurred. Operation EC1 was to be held in the North Sea and to participate in this exercise some 40 ships including two K flotillas were to navigate their way through the complex defences of the Forth estuary, in line astern, at night, in radio silence and with only a single stern light showing at half brilliance. The K boats were arranged in the 12th Flotilla, led by the light cruiser *Fearless* and the 13th Flotilla, led by the light cruiser *Ithuriel,* the latter to sail first. The accident was precipitated by **K14** whose helm jammed during a turn. As a result she was rammed by **K22** (ex-K13) and both vessels hove-to, showing emergency lights, firing Verey lights and radioing for assistance. In spite of these precautions **K22** was struck by the battle-cruiser *Inflexible* and was severely damaged. Finally *Ithuriel* picking up the distress call began a 180 deg. turn, with her escorting K boats. **K11, K17** and **K12** to render assistance. By a miracle she narrowly missed the battle-cruiser *Australia* and her escorting destroyers, and was now heading into the path of the 12th Flotilla



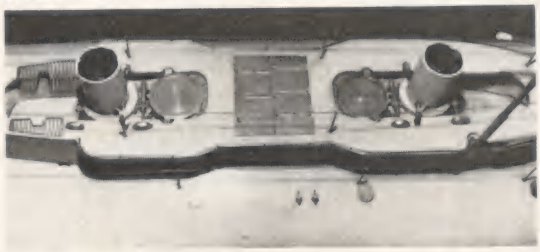
Deck detail on I.W.M. Model below shows gun, forward funnel, gangway position and at right, two views of the duck's tail stern, very adaptable for a working model with large rudder and twin screws.

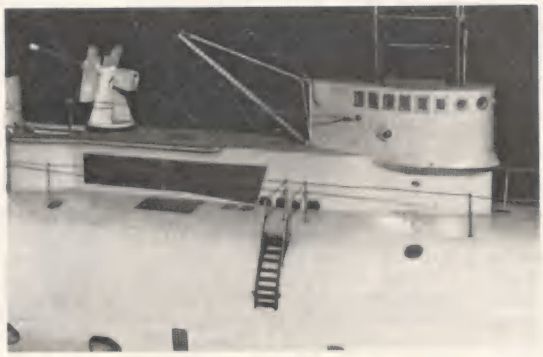
which had not yet been warned of *Ithuriel*'s change of course. By the time that the warning came it was too late, and **K17** was rammed by *Fearless* forward of her conning tower; the submarine went down shortly afterwards. The K boats of the 12th Flotilla were **K4, K3, K6** and **K7** in that order and **K4** now stopped her engines and was closely missed by **K3** as a result; a moment later she was not so lucky, as she was then struck squarely by **K6** and sank almost immediately and, as she went down, **K7** ran over her, scraping her keel on **K4**'s bows. But even this was not to be the end of the tragedy, for now coming up fast were the heavy ships of the 5th Battle Squadron with destroyer escort and, although there were no further collisions, the survivors of **K17** now swimming in the water were run down, and many lost their lives. So ended the Battle of May Island and its tragic and needless loss of life.

It would perhaps have been better had the **K Class** never come into existence, for there were no stirring exploits or high achievements to offset the calamities that befell them. They never engaged the enemy and, while many met an early fate, the remainder came to an ignominious end in the breaker's yard.

It should be pointed out that, while the drawings accomanying this article are based in good faith on the model in the Imperial War Museum, London, the writer is aware that there were numerous detail differences between this portrayal and other 'K Class' boats, and indeed it would seem from photographic evidence that *hardly any two of these boats were at all alike*. Principal differences include the form of the conning tower and whether canvas or steel screens were fitted (or any screens at all for that matter), the number and disposition of the guns and such other details as the lengths of the funnels, which were increased on some craft to prevent a sea being shipped down these rather vulnerable openings. A further sketch shows **K14** with 'swan bows' and it should be mentioned that these were fitted retrospectively when it was found that the forward part of the vessel had insufficient buoyancy; therefore some photographs will show 'K boats' with swan bows and some without, depending upon the date of the photograph. As far as the colour scheme is concerned, it would appear that a medium shade of grey was applied overall, though one photo of **K3** shows the hull to have been in a very light shade (whether silver or grey is impossible to determine) while the decks contrast in a very dark tone.

Altogether 27 'K boats' were ordered. **K1** to **K17** were built as was **K26** but the keels of **K18-K21** were intended to be used for the **M Class** submarines; for example **K18** became the ill-fated **M1. K22** was, of course, **K13** under a new number, while the remainder were never built.





Right, lengthwise view of I.W.M. model; left, the two funnels with covers inboard of each. Below, the conning tower, derrick and gun; at right, the prow with torpedo tube covers.

MILITARY INSIGNIA

Part five of a series by TERENCE WISE. American Forces during World War 2

AMERICANS fighting in France in 1918 adopted the British system of choosing an emblem to represent a unit. These emblems were not officially authorised until the end of the war, but in the following years the American authorities recognised the morale value of such insignia and extended the system to all units. These insignia were usually based on Army colours and unit numbers, *e.g.* 7th Army emblem was a triangle (to represent A for Army) on a pyramid with seven steps (to represent 7), while the colours, blue, gold and red, traditionally indicated infantry, cavalry and artillery respectively.

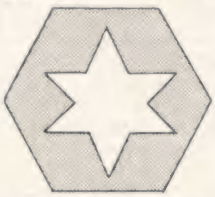
During the Second World War, by code letters to indicate arm of service: AB for airborne, APH for amphibious, E for engineer, I for infantry (separated from the preceding numerals by a dash), TD for tank destroyer and F for field artillery being some of these letters. These were followed by the company number and vehicle number, vehicles being numbered in sequence by unit. Two fictitious examples would therefore be: 3A VIII 6 △ 191 △ K32 (3rd Army, 8th Corps, 6th Armoured Division; 191st Armoured Battalion, K Company, vehicle number 32 – in the 3rd platoon). 6A IX 98 101-I B11 (6th Army, 9th Corps, 98th Division; 101st Infantry Regiment, B Company, vehicle number

Figure 1

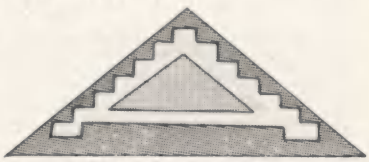
Figure 2

American vehicles were marked with these insignia, especially at higher levels, but they were not so common as in the British Army and most unit recognition on vehicles was achieved by a letter and number code. This worked on the following principle: the Army number followed by A; the Corps number in Roman numerals followed by AB or △ if airborne or armoured; the division number, again followed by AB or △ if appropriate. These numbers, and insignia if used, appeared on the right wings of vehicles, front and rear. Regiment and battalion numbers appeared on the left wings, front and rear, and were followed 11 – in the 1st platoon). On some vehicles, especially the Sherman tank, these codes appeared on the sides. Nicknames, such as *'Lucky Legs 11'*, would sometimes be painted along the sides of vehicles, but these were unofficial. In addition to unit designations every vehicle carried the American white star on its bonnet or glacier plate and on both sides. (Soft skinned vehicles also had it on top.) This was for ready recognition from air and/or ground. Sometimes the star appeared alone, more often it was surrounded by a white circle, either continuous or broken (*Fig. 1*). On tanks the star was often encompassed by a white band round the turret (*Fig. 2*).

5th ARMY (White A and 5 on blue silhouette on red background.) Commander: Lieutenant General Clark. 5th Army's long fight for Italy began with the landing at Salerno in September, 1943, and continued across the Volturno and Garigliano Rivers until the exhausted Army was compelled to halt. 6th Corps was landed at Anzio in an attempt to break the deadlock but failed and not until May, 1944 was Cassino taken, Rome falling the next month. Forced to a halt by the Gothic Line, it was not until the spring of 1945 and the battle for the P/ Valley that the Germans could be finally defeated.



6th ARMY (White six pointed star on red background.) Commander: General Krueger. Created early in 1943, the Army fought on New Guinea, New Britain, the Admiralties, Biak, Noemfoor and Morotai right through to the Philippines. In October 1944 it landed on Leyte, to seize important airfields, and in December on Mindoro. In January, 1945, 6th Army invaded Luzon and took Clark Field and Manila. It was chosen by MacArthur to lead the proposed invasion of Japan. Originally consisting of the 1st and 14th Corps, by the end of the war the Army had four Corps with 500,000 men.



7th ARMY (Red triangle on gold pyramid with blue background.) Commander: General Patton. The Army's 2nd Corps landed in Sicily in 1943 and swept across the island in a classic armoured thrust to capture Palermo and Messina. In August 1944, now under General Patch, the Army's 6th Corps landed near St. Tropez for Operation

Anvil, capturing Toulon and Marseilles. In mid-September the Army linked up with 3rd Army, coming under General Eisenhower's 6th Army Group. 7th Army took part in the opening up of Antwerp, the advance to the Rhine and the Rhine crossing.

9th ARMY (White A surrounded by white clover leaf design on red background.) Commander: General Simpson. The Army landed in Normandy and after the break-out took part in the advance on the Rhine. During the Battle of the Bulge it sent 7th Armoured Division to help defend St. Vith and two other divisions to hold the northern shoulder of the salient. Immobilised by floods at first, 9th Army crossed the Roer at the end of February, 1945. After the Rhine crossing it took Hamm, Dortmund, Essen and Duisberg and on 1st April linked up with 1st Army to capture 317,000 prisoners in the Ruhr Pocket. In the drive to the Elbe, 9th Army captured Brunswick and Hanover and reached Magdeburg, where Eisenhower ordered a halt.

6th CORPS (White figure 6 in red circle on blue background. 7th, 8th and 9th Corps used the same design, the latter having Roman numerals.) Commander: Major General Dawley, later General Lucas. Part of 5th Army, this Corps landed at Salerno in 1943 and participated in the advance on Cassino. In January, 1944, it landed at Anzio, rejoining the main force four months later for the advance to Rome. The Corps joined 7th Army in August and landed near Cannes for Operation Anvil.

7th CORPS Commander: General Collins. This Corps landed at Utah Beach on D-Day and captured Cherbourg. It was involved in the hedgerow fighting and break-out from the beach head, trapping the German VII Army in the Falaise Pocket. The Corps crossed the Roer near Duren and led 1st Army's advance on the Rhine. During the drive to the Elbe it joined up with 9th Army units to trap the Ruhr defenders in the Ruhr Pocket.

8th CORPS Commander: Major General Middleton. Part of 3rd Army, the Corps landed on Utah Beach to guard the rear of 7th Corps. It suffered 10,000 casualties in the hedgerow warfare that followed for a gain of only seven miles. During the break-out it advanced to Avranches in five days and took St. Malo. Badly mauled in the fighting round Aachen, where it lost 6,000 men, the Corps were sent to rest in the quietest part of the Ardennes and here was shattered by the German offensive in December 1944. Scattered elements defended Bastogne with the 101st Airborne Division. Later the Corps took part in the advance to and crossing of the Rhine.

3rd 'MARNE' DIVISION (White diagonal stripes on blue background.) In July 1943 the Division landed in Sicily with 7th Army, reaching Messina a few hours before the British 8th Army. With 5th Army it played a leading part in the assault on the Volturno sector during the advance on Cassino and landed at Anzio with 6th Corps. The Division was with 5th Army for the advance on Rome but returned to 7th Army to land at St. Tropez for Operation Anvil, when it captured Avignon. Under 15th Corps the Division took part in the Rhine crossing at Worms.

31st 'DIXIE' DIVISION (Two red Ds for Dixie Division surrounded by a red circle on khaki background.) Commander: Major General Wainwright. Stationed in the Philippines as part of the North Luzon Force before the Japanese invasion, the Division was engaged in the defence of Luzon in December, 1941, and the withdrawal to the Bataan peninsular where it surrendered in April 1942. As part of 10th Corps, 8th Army, the Division returned to the Philippines in April 1945 when McArthur launched his campaign to drive the Japanese from the islands.

80th 'BLUE RIDGE' DIVISION (Blue mountains on khaki shield with white edge and cross bar.) This Division took part in the later stages of the Normandy break-out and as part of 20th Corps advanced to the Rhine, crossing at Mainz and capturing Wiesbaden.

85th 'CUSTER DIVISION (Red C and D for Custer Division, on khaki background). The 85th Division fought in the Italian campaigns. Making slow progress along the coast it later joined up with the forces at Anzio and was present when Rome fell. The Division played an active part in the autumn battles and took part in the drive to the Alps in the spring of 1945 that ended the war in Italy.

1st CAVALRY DIVISION (Horse's head and diagonal bar in black on yellow shield.) With 6th Army this Division saw service in the Pacific, landing on New Britain in 1944. As part of 14th Corps it landed at Lingayen in January, 1945, and was the first division to reach Manila, although a month's hard fighting was to follow before that city fell.

MILITARY MINIATURE MODIFICATIONS

BILL HEARNE deals with headgear for 54mm plastic figures

IN THIS series so far, we've tackled some of the varied aspects of modifications and conversions of the plastic kit figures manufactured by Historex. We've considered the initial setting-up of the figures and endeavoured to impress that most important word 'balance' for the establishment of a natural attitude in the completed model. A look was taken at what might be done to improve heads, and convincing expressions brought about on the faces and, in our last sitting, introduced some ideas about scratch building clothing. It's to be hoped that what I have been able to offer so far has stirred your individual interest and that you're maybe branching out with a few good thoughts of your own, and if you come up with something revolutionary, put me in the picture. Perhaps I can pass it on through these pages.

Amongst letters in response to these articles, I've been taken to task about my dealing strictly with the Historex line. This is certainly a valid point, and by way of an answer, I'd like to say that polystyrene plastic materials have, in the vernacular of the hippie fraternity, become by bag over the past year or so. Personally, they are far more pliable than figures made of other materials and they tie-up perfectly with the natural versatility of polystyrene card. Doubtless many other manipulators of modelling materials will take those last comments as something of a challenge, but then, as I see it, it's all down to 'whatever turns you on'.

Right! Having disposed of that, I think for this occasion we'll consider a particular question in the creation of conversions: that of headwear. This is unquestionably an important detail, and we'll think about it basically. However, most military headpieces require the addition of badges and the like which can be very well taken care of through the manipulation of a deft paint brush, oftentimes, more convincingly than trying to cut fiddling little pieces from plastic card. Bowl type headgear, such as tin hats, German coal scuttles, pith helmets and the like, are best arrived at by simply moulding the crowns and then attaching peaks, guards and rims afterwards. The French style kepi, with the possible exception of those used by the U.S. forces of the Civil and Indian Wars, shakos, etc., can be made from tubular forms (Fig. 4), while soft caps come from strip plastic card and plastic putty. However, we're charging ahead a bit, and perhaps we'd better look at things on a more individual basis.

To model a tin hat, you need a short length of $\frac{3}{8}$ dowel and an approximate one-and-a-half inch square piece of $\frac{1}{4}$ in. or $\frac{1}{2}$ in. balsa. Go to work on one end of the dowel and form a nice, neat British steel helmet shape as shown in *Fig. 1*. Drill a $\frac{3}{8}$ hole through the piece of balsa, and sand around one edge of it a curve which will couple with that on the dowel where the crown flows into the rim. Thus, you'll have the two mould elements: male and female. Over the hole, pin a generous square of .010 in. plastic card, and subject it to the heat of, preferably, a gas ring on a low flame. For this part of the procedure, you should use a reasonably good-sized pair of pliers to grip the edge of the wood. That is, of course, unless you're blessed with asbestos fingers. Although I've not used it, I guess that an electric ring would give you the same results. Anyway, let whatever heat you use soften the plastic up through the hole. When ready to receive the male mould, the plastic should take on a shiny appearance and flap slightly when the mould is jerked up and down. When this occurs, *quickly* remove from heat, place on a close-by flat, firm surface, press home the dowel impression and hold for a couple of seconds. After a moment or two, remove the dowel and you should have a good reproduction in the plastic. Remove the pins, trim down to required size and you should have in your hand a dandy little tin hat which will, when you're ready, be attached to the head of your figure at a suitably jaunty angle. If a helmet rim calls for some kind of piping around it, this can be done with finely stretched plastic sprue.

Something which could prove of interest is the unbuckled flying helmet worn by my R.F.C. pilot. Firstly I measured around the head which I intended to use by taking a narrow strip of .05 in.

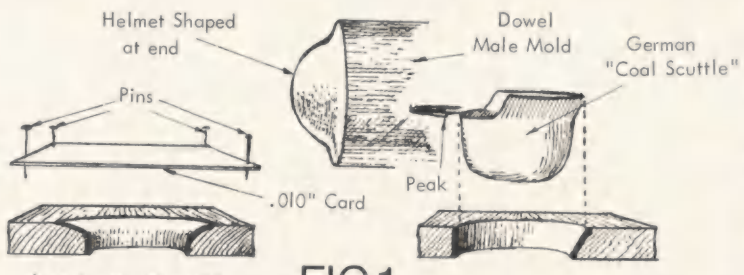


FIG 1

For the purposes of clarity female moulds are shown sectioned to point up necessary sanding of helmet rims. Peak, as on 'coal scuttle', should be added afterwards. No drawings are to scale.

Sketch shows breakdown of parts to create flying helmet. Sprue buckle attaching piece can either be made or painted on afterwards. Helmet seams over head and at sides are painted on.

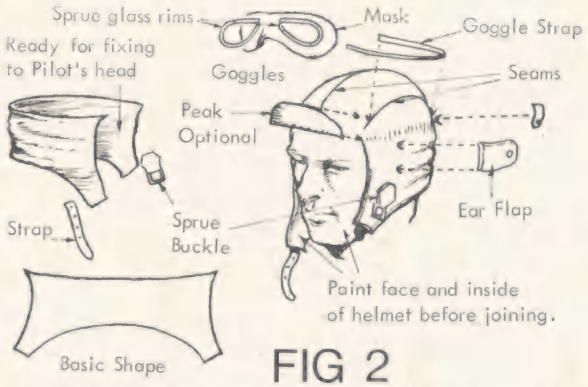


FIG 2

plastic card and marking it at the temples. This distance was transferred to another piece of the same gauge card and, figuring the depth, cut out a shape taking in both side flaps and the back. See Fig. 2. After 'roughing it up' a little to introduce folds and creases I cemented it around the head, the face of which, I'd previously painted. When completely dried I shaved around the step of the join to eliminate any unsightly edge, albeit it can be masked with the goggle strap later. The top of the helmet is taken care of by simply sanding off the moulded hair. You can if you wish attach a small peak piece over the forehead folded back against the front of the helmet for effect or you can, as I did, let the goggles

Drawing at right shows manner in which U.S. 'kepi' was often worn, although frequently it was positioned very much more forward. Chin strap, when not used for purpose, was located over peak.

cover this area. A very fine strip of .05 in. card, suitably punctured with a line of buckle holes done with a needle point, will take care of the chin strap, while the buckle on the other side is fabricated from a piece of fine, stretched sprue bent in a 'u' shape. To apply these fiddling bits and pieces I use a pair of fine pointed watchmakers tweezers and a magnifying glass. Goggles come from another piece of .05 in. card, out of which is cut the basic mask and which is duly cemented above the forehead or over the eyes as your needs demand. For the glass rims bend thin sprue to a pear shape and cement the join. When dry attach them to the mask, one point against the other. Glass can be effected by running clear varnish into the opening and building it up until level with the rims.

For the method of building a U.S. Cavalry forage cap or kepi let me refer you to *Fig. 3* which I'm sure will prove more enlightening than all my written explanations. A cloth cap is a relatively simple thing to drum up. Wrap a suitable width strip of .010 in. card around the crown of the head for the band, into which you drop

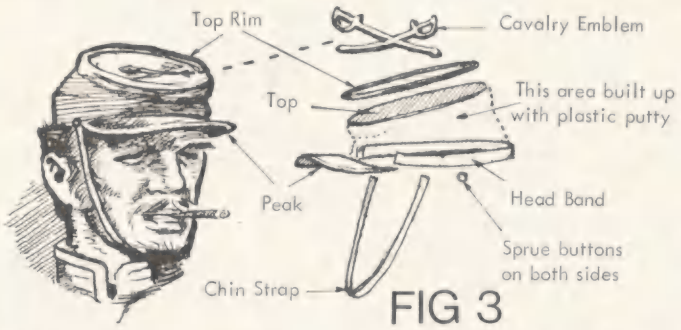


FIG 3

a large blob of plastic putty. Shape it reasonably quickly into the form you want: up at the front and flopping down at the sides is about right and set it aside to dry. Following this you cut a peak, if needed, and cement it in position.

Next month, provided things go as planned, we'll be taking a look at the procedure of animating horses. Meanwhile I've received from Historex agent Lynn Sangster my long since ordered 'Pyrogravure', that invaluable instrument for handling plastic which I've previously mentioned. He tells me that he now has a stock of them on hand but as to how long they're likely to last in his possession is questionable since he must meet a list of orders. Suggest if you want one you stake your claim as quickly as possible. Stake your claim too, on the next edition of *Scale Models*. Be looking for you.

.010 inch plastic sheet is cut on bias, wrapped around conical shaped dowel and steamed, then trimmed to form shako top. Stetson brim can be cut from .05 inch or .010 inch plastic card and slipped into position as per illustration.

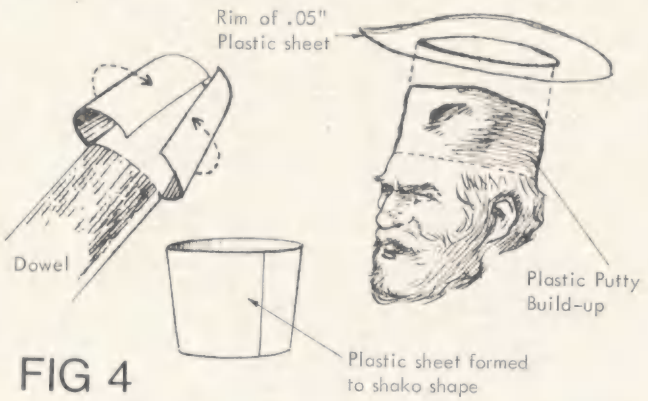


FIG 4

50 YEARS IN THE FLYING MODEL BUSINESS!

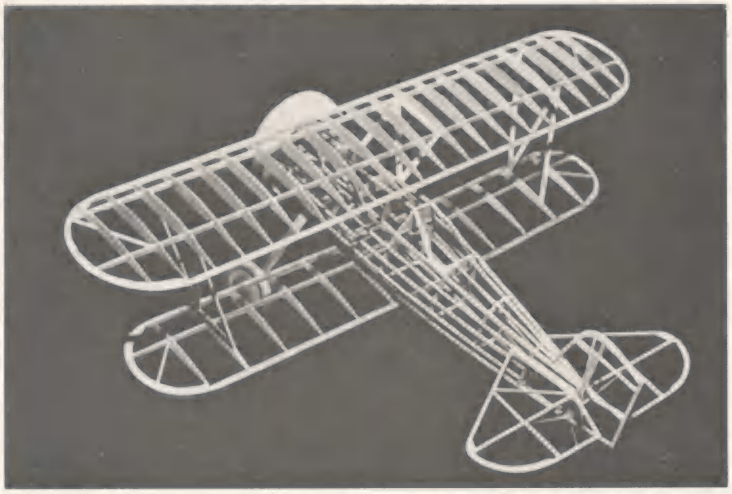
Story of Flying Scale's founder member, Edward T. Packard and his

CLEVELAND MODELS

WITH ITS beginnings back in 1919, when its founder, Edward T. Packard (then age 13), began selling a 28 in. bird-winged Skylark twin-pusher model aeroplane to merchants for sale during the Christmas period, his efforts now known as Divisions of Cleveland Model & Supply Co., have become an institution in the model world. Along with its equally famous brand name Cleveland-Designed Models, it became a household name among modellers everywhere. Nowadays only a modellers' service organisation is maintained, as no manufacturing is carried on. The firm is now located at 10307 Detroit Avenue, Cleveland, Ohio 44102.

Millions upon millions of boys and men have most enjoyably spent many millions of hours building C-D models. They have been deeply inspired and greatly thrilled by Cleveland productions for generations, because Mr. Packard (who at one time employed over 100 C-D workers and who enjoys a colourful career in prototype aviation as well as in model aviation), always contended that scale model aircraft should always look precisely like their full-size counterparts, with reasonably buildable, yet well-engineered internal structures for hard usage.

The authenticity of his designs is so highly respected and relied upon, that he continally receives correspondence from buffs and

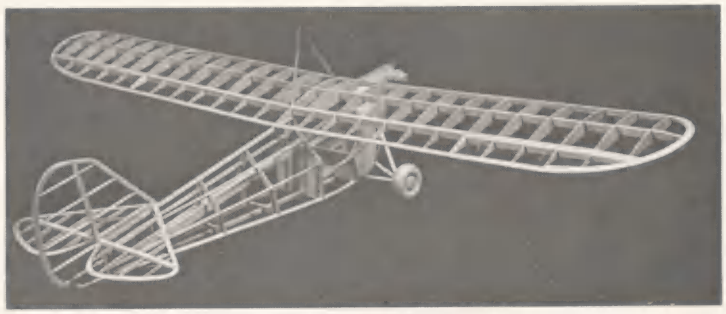


The Boeing P-12-C to 1/32nd 'Minimaster' ¾ in. scale in framework, and as completed by Doug McHard. Most Cleveland designs are available in a variety of scales with common structural design.

replica builders throughout the world, asking assistance for designs of their liking, evidently believing that he has a bottomless source of information on old and historic designs. As the pioneer of the 100 per cent accurate flying scale model, this is a penalty he has to pay for diligence in design.

He states he has been running into almost insurmountable difficulties for the last few years in trying to keep 'Cleveland Model' on an even keel, due mainly to the fact that he has not had sufficient sales support to advertise more extensively to contact the major bulk of former good model builders. This is mainly due to the fact that he discontinued manufacturing kits. The range of finely detailed rubber powered models lost popularity with the swing to power driven models, and to the regret of all who learned their craft upon them, the C-D range lost favour with the trade.

Inflation has also priced C-D kits out of business. Costs have jumped over six times what they were in the earlier days. C-D now charge only about four times earlier prices on an average, for plans and printed sheet, yet many buffs feel such increases an outrage. But when 50-60c hourly workers now command $3.50 to $4.25 per hour in the U.S.A. for instance, what can be done? Just gulp?



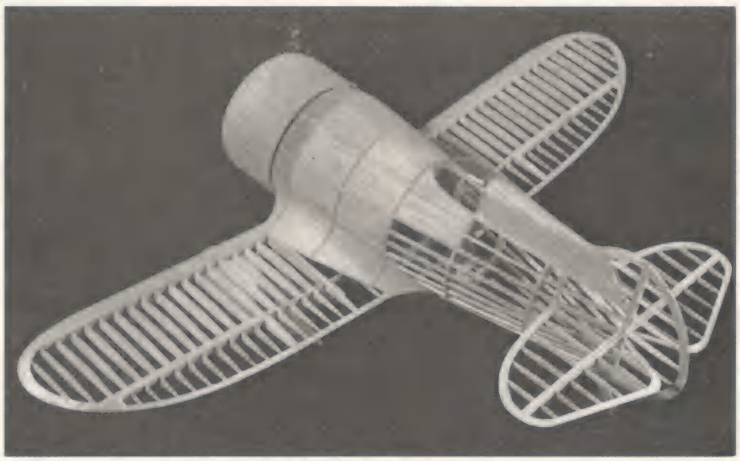
In the belief that the American model *building* hobby will return in reasonable measure, Mr. Packard is joined by 16 dedicated volunteers who continue designing the old beauties just to keep the hobby and the firm alive with the best designs available, worldwide, they say. Among the men will be found a president of a medium-sized foundry, U.S. Government Inspector, engineers, designers, draughtsmen, artists and a college professor. Such spirit is highly commendable.

Left opposite, Ed Packard and 2 favourites, a 1929 Travel Air and a 1941 Republic Seabee. The sketches illustrate some of the new designs to 1/16th scale. At right, the Aeronca C3 framework, and covered, from the 1/16th scale 'SF' plans. Note rubber motor stick within fuselage of this 27 in. model made by Doug McHard.

The 1929 Travel Air 'Mystery Ship' has long been established as a 'Cleveland' trademark. In the 1/24th 'Dwarf' model line it has a span of 14¼ in. Many other famous racing aircraft are included in the C-D Masterplans.

The number four C-D Catalogue speaks eloquently for them by the display of the first 34 designs completed (and many more on the way). Along with the No. 4B supplement we find for instance: the early *Sopwiths, Baby, Tabloid* and *Schneider, Curtiss P-1* Series, *D.H. 2, 4 and 5, Pfalz DIII* and *DXII, Macchi—Castoldi 72, Waco 10*, and the classics *Avro 504K* and *Stearman P-17* to say nothing of many of the famous beauties of the older line, such as the *Hawker Furies* and *Hurricane*, the *Spitfire, Messerschmitt, Stuka, Zero, Great Lakes Trainer, Mosquito, B-17* and a host of others, equally famous.

At one time before W.W. II, C-D recorded 78 countries from which orders had been received. Since then many more have been added to the list. Today, the customers are mainly the 'boys' of the 20's, 30's and 40's, now turned grey in many instances,



Framework of a 1/16th scale Bayles Gee Bee 'Z' Super Sportster of identical structure to the 1/24th design on following pages. Extremely light, the Gee Bee makes a good subject for rubber driven scale free flight.

with children and grandchildren, who have never forgotten the distinctive quality of Cleveland's designing.

This is undoubtedly because of Packard's attention to detail and authentic appearance due to his earlier experiences on prototypes, having been employed by such firms as Glenn L. Martin, Fokker Aircraft Corporation, Woodson Engineering Company and in assisting many barnstormers and visiting fliers in the Cleveland area. He was also secretary of

From the Doc Nichol collection, this photo of Lowell Bayles being covered by the cockpit hatch before the fateful flight on 5th December, 1931. During high speed record attempts at over 325 m.p.h., the wing failed, with tragic results as seen in Doc's sequence opposite. Small dimensions are evident, especially the shortness of the fuselage, a feature not displayed by the Cleveland Caudron C.460 Racer to 1/16th scale below.

the Cleveland Glider Club in the 20's. He became acquainted with many famous flying personalities in American aviation: Fokker, Martin, Stinson, Admiral Byrd, and others. He worked on trans-Atlantic planes in the 20's, thereby helping create some of aviation's history, an interested sidelight.

With the aid of his volunteer 'organization', he now states the number of plans he will have available totals over 600. Some designs appear in 4 differently sized lines to suit all comers, from the 3/8 in. 'Peanut Scale' to 2 in. scale radio controlled models. Some were designed as far back as 1936 and many of the smaller scale jobs go back to 1929.

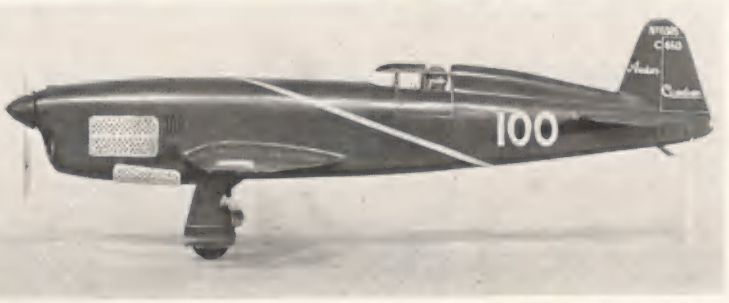
For his 50th anniversary in operation as the world's oldest model aircraft firm, he is introducing 50 new plans of many countries, in $1\frac{1}{2}$ in. scale to power for free flight, control line and R/C flying by enlargements of his top quality lines, 'SF' $\frac{3}{4}$ in. scale (1/16 size) and 'Dwarf' $\frac{1}{2}$ in. scale (1/24 size).

Mr. Packard says, *'Were it not for the fact that these models were designed closely following prototype practice so they might be employed by museums or for display, as well as being very sturdy for sport flying, I never could have so successfully made this transitional or new full-size Custom-Conversion line of "building plans" with all patterns on them.*

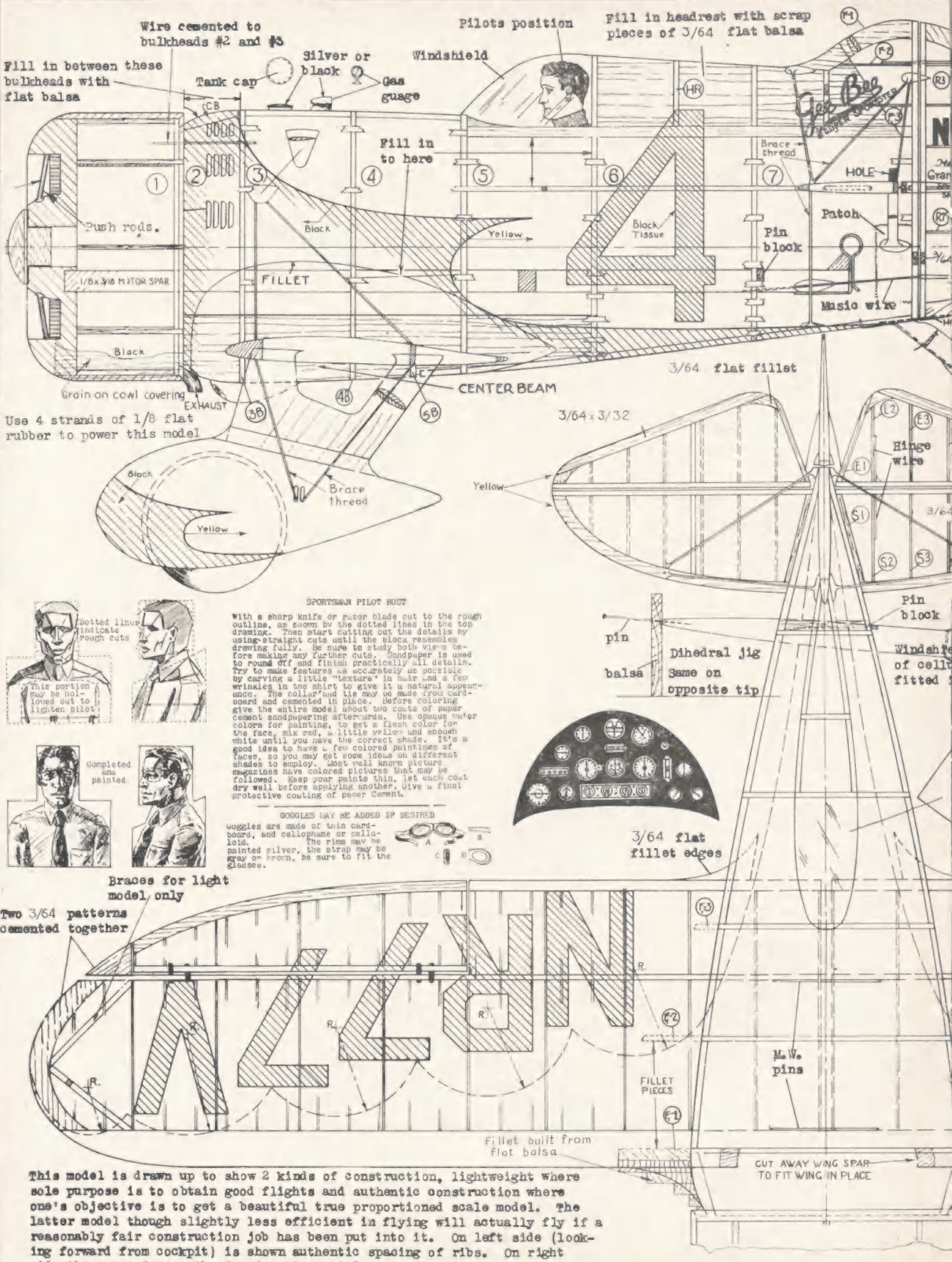
Suggestions for the little 'beefing-up' required are now given on each plan according to the builders' requirements. The new Plans line should become tremendously successful world-wide since the spread of designs is so varied and taken from many different countries. There is no intention to manufacture kits.

Mr. Packard wishes to devote the balance of his life to research and development of many more fine designs with the aid of volunteers, for museums and posterity to enjoy, in addition to introducing aerospace teaching to the schools of the world who qualify through his newly established Packard Aerospace Education Foundation, a non-profit organization.

Since the moon-walk by Neil Armstrong, schools everywhere are clamouring for aerospace instructional material, but since this is such a vast subject to even comprehend, this programming will take many years' time to cover all grades. Much of the required teaching is already within the schools. This coordinating programme will supply only the aerospace science to bring specific courses up to date, while inspiring children and exposing them to some of the type of work they may be expected to follow in this and succeeding generations.



As on the cover, Doug McHard's Gee Bee 'Z' is impressively correct. Light spray over the tissue covering results in a total weight of only one and a half ounces, despite the bulky fuselage and 17 in. span. See drawings to smaller scale on next pages.



SPORTSMAN PILOT BUST

With a sharp knife or razor blade cut to the rough outline, as shown by the dotted lines in the top drawing. Then start cutting out the details by using straight cuts until the block resembles drawing fully. Be sure to study both views before making any further cuts. Sandpaper is used to round off and finish practically all details. Try to make features as accurately as possible by carving a little "texture" in hair and a few wrinkles in the shirt to give it a natural appearance. The collar and tie may be made from cardboard and cemented in place. Before coloring give the entire model about two coats of paper cement sandpapering afterwards. Use opaque water colors for painting, to get a flesh color for the face, mix red, a little yellow and enough white until you have the correct shade. It's a good idea to have a few colored paintings of faces, so you may get some ideas on different shades to employ. Most well known picture magazines have colored pictures that may be followed. Keep your paints thin, let each coat dry well before applying another. Give a final protective coating of paper cement.

GOGGLES MAY BE ADDED IF DESIRED

Goggles are made of thin cardboard, and cellophane or celluloid. The rims may be painted silver, the strap may be gray or brown, be sure to fit the glasses.

This model is drawn up to show 2 kinds of construction, lightweight where sole purpose is to obtain good flights and authentic construction where one's objective is to get a beautiful true proportioned scale model. The latter model though slightly less efficient in flying will actually fly if a reasonably fair construction job has been put into it. On left side (looking forward from cockpit) is shown authentic spacing of ribs. On right side there are fewer ribs for duration model

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A CLEVELAND DESIGNED ½ SCALE FLYING MODEL D-17-B
1931 GEE BEE SUPER-SPORTSTER

PRATT & WHITNEY WASP JR. ENGINE — DRAWING IS FULL SIZE

THIS DESIGN INCORPORATES THE EXPERIENCE OF THIS CONCERN AS MODEL ENGINEERS, SINCE 1919

Build fuselage in two half-shells. The left side is made first, using this drawing and pins as a "pattern jig". Trace the outline and bulkhead positions and reverse tracing for making the right side. When complete, cement the halves together. Clamp for doing this may be made of 1/16x3/8x1 pieces notched 5/16 x 5/8" long (pointed).

Black ink lettering

Scale propeller carved from hardwood block. Finish with paper cement and silver.

C-D Models with their details are the most imitated line of models in the world. Beware of substitutes.

Powered By P.&W. WASP JR.

CITY OF SPRINGFIELD MASSACHUSETTS

Sketch and lettering may be painted on with China white using fine brush

Rudder horn

Streamline music wire tail skid with a piece of wood or thin celluloid

Flying propeller attachment

Cut out and cement to bulkhead #5

Bond paper

Thread wrapped dummy cylinders

Fillets are formed by slipping in scrap pieces of flat balsa between F3-F4 and F5. They are later sanded to a fillet shape

This plane is colored as follows: black front of fuselage, front of wheel shoes, front of wings, and details, balance yellow. All lettering black tissue. Scale propeller may be silver.

CENTER BEAM

Put a drop of cement at all intersections where thread and wood meet

Cement solidly

#20 silver thread is used for wires

EXHAUST

Fillet of balsa

Supercharger intake

Trailing edge

Top view of wheel shoe

Music wire axle

Break razor blade diagonally across like this for cutting out curved parts from balsa

Celluloid washers made of windshield material are cemented to wheels for bearing surfaces.

3/64 x 3/32

Center spar

Yellow

Black

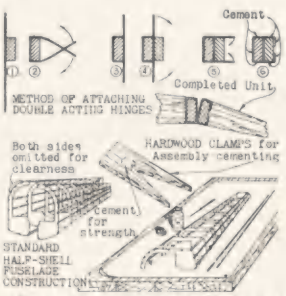
HINGE

3/64 x 3/32

Aileron spar

HINGE

3/16 x 5/16 Leading Edge



After cutting out bulkheads (including notches) pin both top and bottom stringers in place and cement all proper bulkheads in position followed by all others. Trace or reverse the drawing, make opposite side and glue both sides together with aid of clamps.

Lettering shown as viewed from top of model. From the under surface, the plane coming from above toward you, the lettering reads from left to right - 4, then NR77V

Brabham B.T. 26

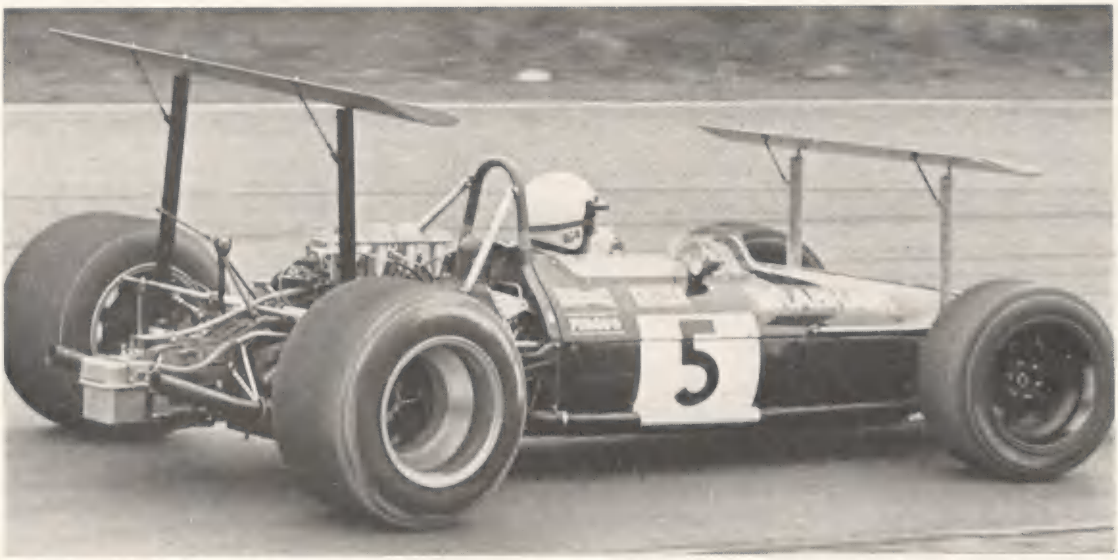
drawn by Roger Taylor

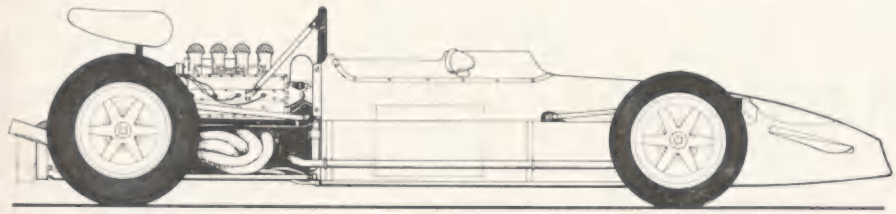
described by John Wood

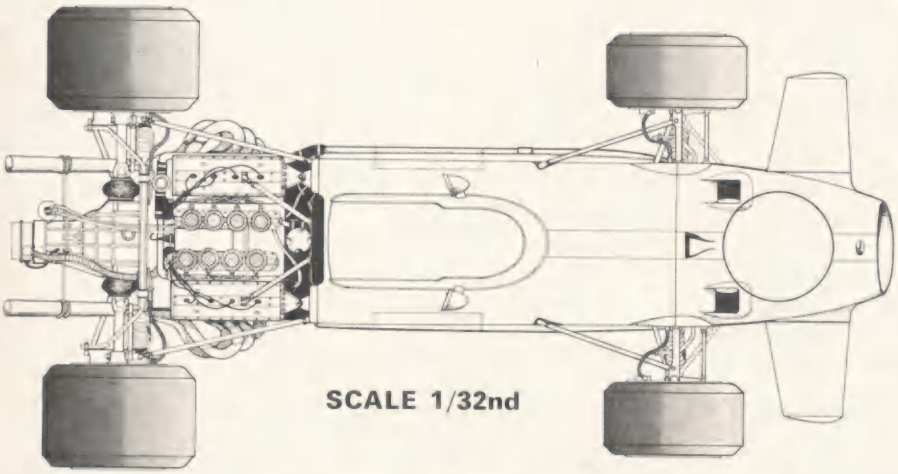
After a highly unsuccessful 1968 season, the Formula One Brabham team recovered some of their 'cool' last year. The influx of Jackie Ickx, undoubtedly made a lot of difference to the team, but the biggest factor in the comeback was without doubt the decision that 1968's cars should have their Repco engines replaced by the all-conquering Cosworth DFV 'mill'. The 'four-cam' Repco engine had proved abortive in 1968, so abortive, in fact, that Jack Brabham had severed his connections with the Australian firm and joined the 'Formula Ford' type of Formula One constructor in the close season. He did not, however, appreciably change the chassis design of his 1968 car, the B.T. 26, but just swopped engines.

The B.T. 26 first appeared with a Ford engine at last year's South African Grand Prix meeting, where it caused a few raised eyebrows, for Brabham scored fastest practice time and was the only driver to seriously challenge Jackie Stewart (before the car's wings fell off). (*For plans and description of the Brabham B.T. 26-Repco, see 'Model Cars', April* 1969.) The next race was the Race of Champions at Brands, where Brabham

Top: Practising for the Race of Champions at Brands Hatch, Kent, the BT 26 with lowered aerofoil compares with Jack Brabham's own mount below using the twin wings with inverted lifting sections. Opposite, near view illustrates the harness in glass fibre seat and three instrument dashboard in crackle finish, RPM in centre, set at an angle. Removal of top panel in view opposite, bottom right shows instrument panel mounting, gear lever alongside, padded wheel and sheet stiffening on chassis. Jackie Ickx, winner of the German G.P. and Canadian C.P.S. peers through his space helmet in view above.



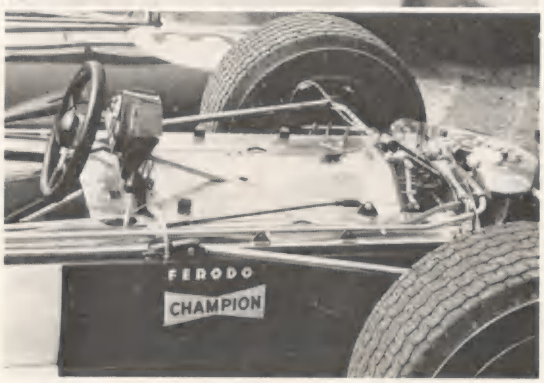




SCALE 1/32nd

and his team-mate Ickx both retired, Brabham, however, really showed the G.P. 'Circus' how to drive in the B.T. 26's next race, the *Daily Express* Trophy at Silverstone. In soaking conditions 'Black Jack' dominated the race, to win by a handsome margin. Ickx, following his boss's example, drove extremely well to finish fourth. This race proved the high-point of the early season for the Brabham team, for in the next two G.Ps, both cars retired. The Dutch G.P. gave the Brabham Team their first championship points of the season when Ickx finished fifth, and Brabham sixth.

Before the next Grand Prix, the French, the Brabham team suffered a severe blow when Jack Brabham crashed while testing his car. Jack, unforunately, broke his foot and was out of racing until the Italian G.P. While his 'gaffer' was

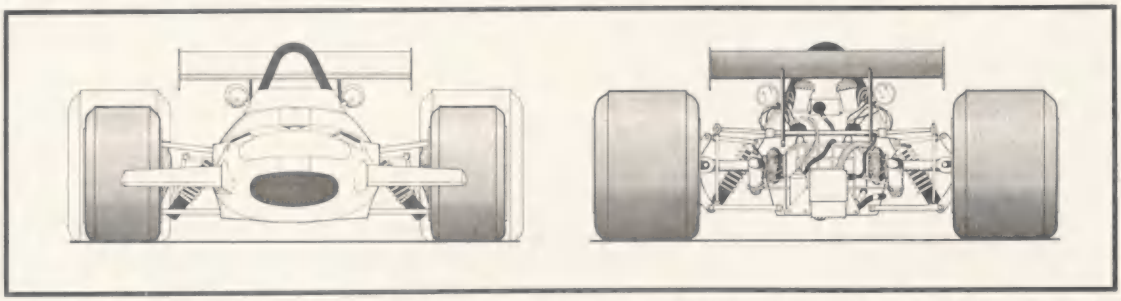


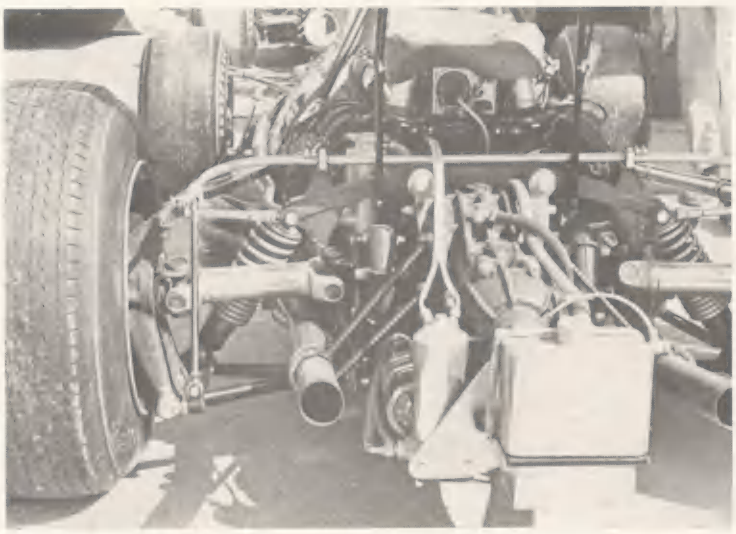
Transparent sheet end plates on this aerofoil enabled changes to be made – and reveal standard Clark Y section. Air intakes have a protective cover fitted. Roll bar carries cylinder head steady.

convalescing, young Ickx managed four wonderful results, a third place in the French G.P., a second place in the British G.P., a win in the German G.P. and another in the Oulton Park Gold Cup.

Jack returned to racing at the Italian G.P., but it seemed that he had brought bad luck with him, for both he, and Ickx, retired with engine failure. The bad luck soon changed, however, for in their next race Ickx and Brabham finished first and second. The season ended for Brabham with a fourth place in the U.S. Grand Prix, and a third in Mexico, Ickx retired in the first of these races, and was placed second in the other. Thus a successful season for the Brabham team ended, with Ickx in second position in the World Championship, and Brabham tenth, after missing three races.

The B.T. 26 was unique in 1969 in that it was the only car raced by a works team which featured a chassis which was basically a space frame. The chassis was, in fact, a multi-tubular space frame with aluminium panels riveted to the chassis tubes in the car centre section, forming a stressed portion of the body/chassis. For the coming season Brabham has joined the other manufacturers by building a monocoque chassis. So in 1970, for the first time in many years, no works F.1 team will be using a space frame chassis.

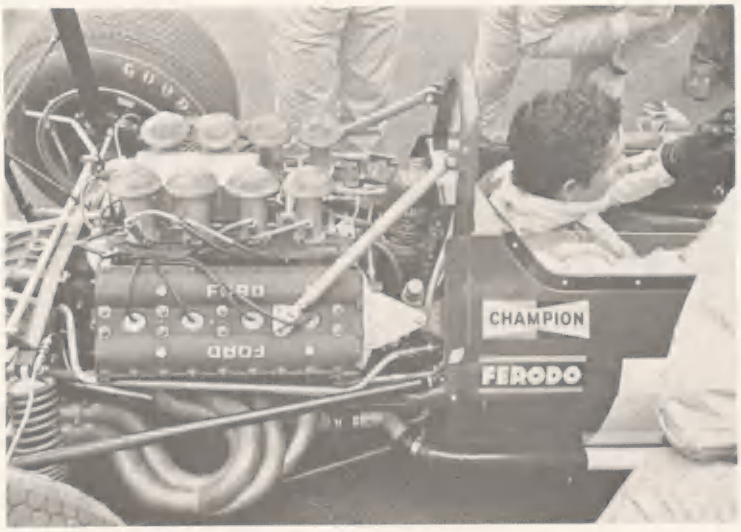




While the B.T. 26's chassis could be said to be unique, there was nothing unique about its suspension, which followed modern G.P. practice. At the front of the car upper and lower wishbones, and coil spring/damper units were employed, at the rear upper links, lower wishbones and damper units, located by twin radius arms, were fitted. Anti-roll bars were fitted on both the front and rear suspension. Fifteen inch, six-spoke, cast magnesium wheels were fitted, these being Brabham designed. Brabham was the first F.1 constructor to use Goodyear tyres,

Stern view at Brands shows drive shaft, suspension and ancillaries which present an untidy though well prepared appearance.

Power department showing mushroom filter gauzes over down draught intakes with automatic fire extinguisher between driver and engine. Note tyre tread variations in these photographs.



and he continued to do so during 1969. Goodyear were certainly not competitive with the other makes of tyres early in the season, but by the late-season races, they proved to be the fastest tyre.

The engine fitted to the B.T. 26, along with every other top F.1 car, was the Ford financed, Cosworth conceived and built, all-conquering, DFV V8. This engine, in its 1969 version, produced about 420 b.h.p. at 10,000 r.p.m., and was much smoother in operation than the '68 version. The DFV's bore and stroke is 85.7 mm. and 64.8 mm., offering a capacity of 2,993 c.c. Four valves per cylinder are, of course, used by the engine. A Hewland type DG300 five-speed gearbox was fitted to the car, this 'box is fitted to almost every F.1 car at present racing.

Other than the engine, the main visible difference between the 1968 B.T. 26 and last year's was to the nose section. As can be seen from Roger's drawing, the 1969 Brabham featured a 'droop snoot' type of nose. Also different from the 1968 version were the large nose fins fitted to the Cosworth powered car. Like all racing cars last year, the Brabham suffered from the F.I.A.'s controversial decision to ban suspension-mounted airfoils. Before the ban the Brabham was fitted with a large rear wing and a smaller, lower airfoil mounted on the front body, after the ban, a small chassis-mounted wing was fitted, as drawn.

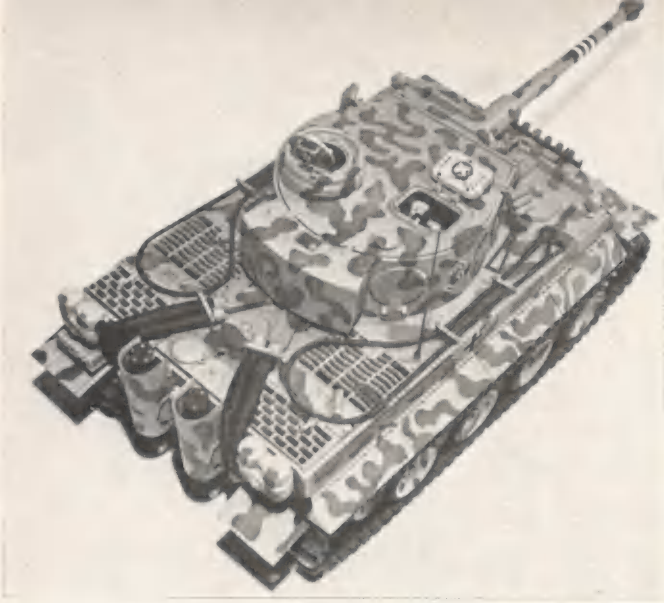
A third, privately entered, B.T. 26 was driven by Piers Courage. This car, which was entered by 'Fearless' Frank Williams, was painted Royal Blue, with a six-inch long white stripe in the centre of the nose section. The 'works' cars were painted Apple Green with a bright yellow stripe, as drawn. Throughout the season, Ickx's car carried the numbers 4, 6, 7, 9, 11, 12, 15 and 26, Brabham's 3, 5, 8, 11, 12, 14 and 28, and Courage's 9, 11, 16, 17, 18, 21 and 32. Gulf, Goodyear, Champion, Ford and Ferodo advertisements were carried by the work's cars, and Dunlop, Castrol, Burmah, Lucas and Girling by Courage's.

At the end of the 1969 season, Ickx left Brabham to rejoin Ferrari, and Brabham decided not to replace him for the coming season, but to run a one-car team with himself as driver. The B.T. 26 is being replaced by a new monocoque Brabham. Frank Williams is running the works De Tosamo team next season, so it seems likely that we have seen the last of the B.T. 26, as a serious Formula One car. Its passing marks the end of an era, that of the space frame F.1 car, which began in the early 1950's and began to fade in 1962 when a certain Colin Chapman introduced the Lotus 25.

Brabham B.T. 26 – Vital Statistics

Wheelbase	...	93 in.
Track, F.	...	55½ in.
R.	...	59 in.

Front suspension, with cooling intake for brakes and bright finished tubing. Cooling outlet is from radiator mounted under detachable nose cover.



TAMIYA'S Super TIGER 1

reviewed by R. C. Jones
model by L. Bouts

The completed Tiger, note the hatch detail and external fittings. The four black pipes are rubberised material and lock into the exhaust boxes thus holding the upper deck in place.

THERE is little need to introduce the latest release from **Tamiya** to our readers, as everyone has been talking about their 1/21 scale kit of the *Panzer-Kampfwagen VI Tiger 1. (SD.KFZ 181) Ausfuehrunge E. (Tiger 1 type 'E')*. Our sample was supplied by **Richard Kohnstam Ltd.,** who are imimporting this kit and it retails at 119s. 6d.

A large scale kit of the *Tiger 1* has been eagerly awaited by expert and novice alike as this, perhaps understandably, typifies to young and old alike the German Armoured Fighting Vehicle of W.W.II, and this kit truly does justice to a magnificent vehicle.

Completely lacking any form of motorisation (though we now understand that a motorised kit of this may appear later in the year), it is possibly the most involved plastic kit yet produced. Magnificent box art painting makes one realise that this is a kit well above even the normal high standards associated with Tamiya.

The instruction sheet is in English and covers the complete history of the Tiger in combat, together with a mass of fascinating and authenticated detail as to the operations in which they took part, the units that used them and where, and also a breakdown and explanation of the markings carried on this vehicle. That takes only the first three and a half pages! One also has a superb cutaway drawing of the whole tank, together with a key giving the details and names of all parts shown. Then seven more pages show each stage of assembly – which are remarkably straightforward, provided one does follow these *exactly*. These are complemented by excellent drawings, together with photographs in close-up of the relevant parts of the full-size tank.

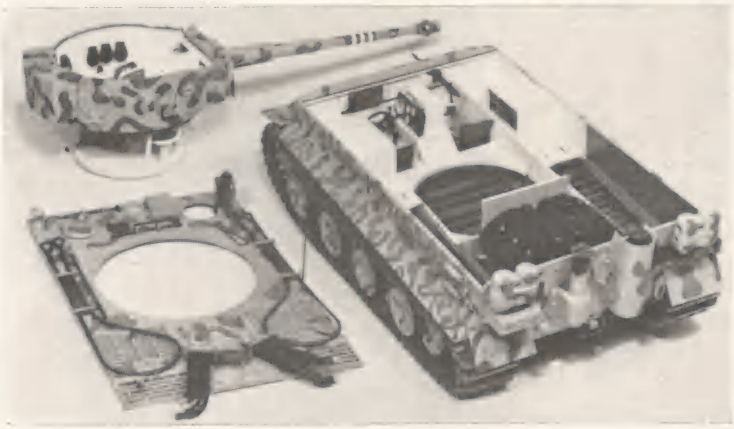
Next comes a complete illustrated page on colouring the crew uniforms, followed by yet another page devoted entirely to the explanation of the various badges and markings applicable to both the uniforms of the crew and the exterior of the tank. Again, photographs of full-sized Tigers are used to back up the text.

Finally, there is a page illustrating each sprue unit with identifying numbers for each part – which is another asset to ensure correct assembly, and is continued on to the final page (number 16) of the instructions.

Next come the decals – these cover full markings for the Tiger 1 of 2nd Lt. (*Untersturmfuhrer*) Michel Wittman of the 1st SS Panzer Division *'Liebstandarte S.S. Adolf Hitler'* as operating in the Kharkov area of the Russian front 1942/43 – this includes the famous gun barrel 'kill' markings showing 88 vehicles destroyed up to that time.

Other markings include turret identification numbers, together with Panzer Divisional markings for: *'Grossdeutschland', 'Hermann Goring', 1st S.S. Panzer Division* of both pre- and post-Normandy periods, *2nd S.S. Panzer Division 'Das Reich'*, with both the pre- and post-Kursk battle insignia plus the Crossed swords of the *28th Panzergrenadier Division*. In addition, one is provided with markings which the British applied to a captured Tiger and various other smaller, but nonetheless important, markings, altogether an excellent decal sheet indeed. A four-view drawing is also provided, showing the positions for these decal markings. Having at this stage only partially digested the contents of this Pandora's Box, we turn to the kit proper.

In common with Tamiya practice the lower chassis is moulded separately from the upper decking; but in this instance one does not have to worry about bending hairpin wires to activate the working suspension. It is of the torsion bar type, and consists of stub axles which are inserted through the one side of the hull to lock into prepared slots on the far side of the hull floor which provides a genuine torsion bar working suspension!



Shows the driver's compartment and rear mounted 'engines' also the separate turret/fighting compartment unit.

Camouflaged in sand and green the markings shown are those provided in the kit for Wittman's tank. The same markings may be used but the model given a coat of white to represent the temporary 'winter' finish. Note the realistic 'wire' tow cables also provided in the kit.

Having carefully followed the drawings and instructions (this being absolutely necessary, or one may well end up with the bogeys and wheels in the wrong order), one then comes to *the* feature of this kit, the superb internal detail. We must, before we go any further, make it *quite clear* that the publicity photographs of this completed model which show the left-hand front side of the hull cutaway were done simply to illustrate some of this internal detail and that the *kit is not cutaway* in this manner.

To describe the welter of fittings, seats, ammunition, engines, and all the other components that made up the 'innards' of this beast would take more space than the Editor will allow. Suffice to say that virtually nothing has been omitted – there is room for small additional detail yes, but that would be merely gilding the lily.

Having completed the lower hull and interior of same, we come to the rear and front armour plates – and again the wealth of detail is amazing – after that, the hull deck plate receives our attention, and yet again the superfine mouldings are among the finest we have ever seen on any kit. Everything fits 'just so', and if by this time one has *not* appreciated the magnificent model that is taking shape, then the assembly and detailing of the turret and interior crew fighting compartment will certainly convince you. *Everything* is there, right down to the ammunition pans for the m/g's and the various locking bars and handles with clips for the hatches.

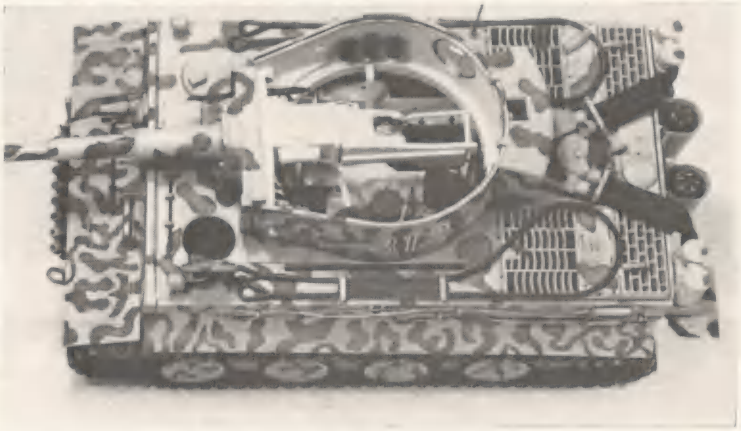
The only slight correction that we found necessary, involved the commanders and gunners/loaders' seats, these being slightly out of position. These have to be moved so that the figures can stand on these seats to peer out of their respective hatches – a simple item to correct.

We move to the external details. These are up to the high standard of the remainder of the model, even down to a real blade for the spade! The interior detail and all the smoke grenade shutes and lights and operable hatch covers is not wasted, as each 'deck' on the hull, together with the top flat turret plate are all *removable to expose the interior*. One may also lift the turret unit out complete, including the fighting compartment, to expose the lower hull, engine and other details.

The track is made of individual links, which are formed of a resilient plastic material which, even if left unpainted, have a most realistic 'metallic' look about them. Whatever the plastic used for these parts, the business of linking each piece together is not the finger-wreaking process which marked the earlier attempts at separate linkages. Sufficient pieces are provided to enable one to have the track 'sagging' – as it would appear after several days 'in the field' – or a taut, factory-new setting. Whichever you choose, more than sufficient track is left over, which is then positioned on the front hull plate as on the real vehicles, for added armour protection.

To suggest that this is the finest tank kit yet available is simply stating the obvious. It is remarkable value for money – we can think of several other more expensive kits that just do not compare to this one. Above all though, is the certainty that whether one is a complete beginner or an experienced modeller, *provided one follows the instructions* and takes time and patience in every step, the resultant model is one of which anyone would rightly be justly proud.

All we would add to this is the hope that Tamiya will at some future date, issue a similar kit in their smaller 1/35 scale Tamiya range . . . as even without the super detailing of this larger scale offering, such a kit would be welcomed by modellers. There is no other comparable kit of the Tiger 1 in this scale.



Notice the extremely good fit of the upper deck into the lower hull thus giving the model a 'solid' appearance. Interior turret detailing is of the highest order.

LEAD SOLDIERS AUCTION

From Peter Cushing's collection, came this Pipe Band of the Black Watch (Britains) with standard bearers in original box. Lot 188: £25.

Scale Models report on a collectors' sale

Nearly three hundred lots, mainly lead and toy soldiers, came under Mr. Christopher Weston's hammer at Phillips, Son and Neale's first auction of its kind at their London salerooms on 11th December. (There has, we understand, been one previous similar sale, but checking back to their foundation in 1796 this is the first one that Phillips, Son and Neale have arranged.) With little or no previous experience to guide them, some very vague ideas on values, but with the expert military knowledge of Mr. Richard Lane who was responsible for arranging the lots to assist, the sale was regarded as something of an experiment.

A number of glass showcases were brought out from store to house the smaller and more fragile of the entries, and particulars of the sale sent out to a world-embracing list of collec-

Left: Part of Lot 74 . . . 'Stadden . . . sergeant and officers in group with colours'. 54 mm. figures. Realised £18.

Below: One of the three examples of mounted figures of the Black Prince by Courtenay from Peter Cushing's collection. There were numerous figures of this period – favourites, perhaps, of the actor or the creator?

tors. Any fears that interest might be lukewarm were dispelled long before the sale, when it was clear that nearly every lot was in demand, and the auctioneer had firm bidding instructions to handle. Again, a sparsely-filled saleroom had been rather feared – actually it was something of a squeeze to get all the would-be bidders in! These included no less than sixteen American buyers in person, one lady of whom had flown over specially for the sale and was delighted to pick up several of the more exciting lots.

Total realised amounted to £3,489, brought up to over £3,500 by sale of several lots privately after the auction. Many items were in original boxes, some were one-off specials, and the majority various Britains' sets from the collection of actor Peter Cushing (Lots 131 to 284); some from the collection of the late Frederick Beales; the balance from various sources. Of special value to collectors and the trade was the establishment of a price scale which will guide values at least until the next sale. Interest was centred on militaria to the exclusion of general interest items, such as a Crescent Coronation Coach with Windsor Greys and postillions which fetched a mere £4 10s. Bargain of the sale was probably Lot 40 described as 'a large lead model of a mounted kettledrummer, 11th Hussars, Crimean War period, on stand 17 in. high, by B. A. Pearce', which fetched £14 from a lucky American buyer, and will no doubt be a worthy centrepiece for his display.

This pinpoints the special interest in standard 54 mm. figures where constant scale makes display so much more satisfactory. Here, it was very much a question of good prices for what the modelmaker would describe as 'toys' – a typical lot being No. 188, a Britains' Pipe Band of the Black Watch in original box, which fetched £25. Nearby Lot 184, that auction bidder's delight a 'miscellaneous' box, numbering 39 mounted and 128 standing soldiers, fetched top price of the day at £60.

Drummer from miscellaneous lot of thirty-one pieces including six mounted bandsmen Royal Scots Greys (Britains) Lot 76: £18.

Two figures from eight pieces in Lot 143 by Greenwood & Ball. These are part of 'and four others' not identified, but probably R.H.A. and infantryman of the line.

Some of the more delicately finished lots by Greenwood and Ball, Stadden, Heyde and Courtenay were in demand. Three lots each including a mounted figure of the Black Prince – one with detachable crown – fetched £16, £13 and £17. A horse-drawn limber, covered ambulance, with semi-flat horses in very poor condition nevertheless raised £21, probably because it was mainly tinplate, always in demand.

Another bargain lot we have been regretting not putting in a price for, was four volumes of coloured prints: La Grande Armee de 1812 by Carle Vernet – only £4 10s.!

Bargain! Part of handcarved Lot 17, four S.F.B.J. French line infantrymen with detachable rifles, 4 in. high, and a mounted officer in original box. Only £3!

Some lots, of course, fetched ridiculous prices where bidders became infected with 'auction fever', delighting the auctioneer with one lot at any rate, which was knocked down at £9 – and could have been bought brand new in the West End for under £3! In other cases prices put in by buyers were more than sufficient to acquire the lot, sometimes at as little as one-third of top bid put in, for lack of an active underbidder.

The auctioneers can look back with satisfaction to an instructive day. Of 284 lots, only two errors of description occurred – and with so many experts in attendance, this is indeed an achievement! Interest was widespread – mainly British and American, European enthusiasm has yet to be aroused – the good publicity the sale received will encourage many families to look in their lumber rooms to unearth unsuspected treasure. This should mean that the stock-in-trade of the next few auctions at least is assured. Phillips Son and Neale hope to have at least one, if not two, a year, and feel this is very much in line with their policy of encouraging aspects of collecting within the purses of the ordinary 'man – and woman – in the street'.

We hope to be able to carry advance notice of the next sales!

NEW BOOKS

REVIEWED BY AND FOR SCALE MODELLERS

THE hobby of wargaming is still as popular as ever and we constantly read of new wargamers groups being formed by enthusiasts for this fascinating pastime. For anyone who has wished to learn more about the subject there has been very little in the way of literature to channel their interest beyond perhaps admiring various displays – such as those seen at last year's *Model Engineer* Exhibition.

Introduction to Battle Gaming
by Terence Wise

Published by Model and Allied Publications Ltd., at 21/-. Mr. Wise is an acknowledged authority on the subject and it would be difficult to find a more comprehensively written and illustrated guide than this.

Commencing with a chapter *The Origins of Wargaming*, one works gradually and very thoroughly through to chapters on the use and availability of commercial kits and models together with appendices covering Battle Gaming Figures and Accessories wherein are listed the figures available (by period from Egyptians, Assyrians and Nubians up to modern warfare), and the manufacturers producing same Similarly a list of books and publications is also included.

The photographs used throughout the book include some really rare items such as those illustrating toy wooden soldier figures taken from the tomb of Masahite, Prince of Asiout, 11th Dynasty 2100-2000 BC, some early German metal figures of about 1877 continuing through the years bringing us up to the very latest Airfix and similar miniatures.

Many ideas for battles are offered, including drawings showing the layout of the field of combat, together with representative dioramas, etc. A most enlightening publication that we recommend most heartily to anyone interested in military history as well as the potential and active wargamer – history was never presented like this when we went to school; and modern educationalists would do well to consider presenting historical teaching utilising wargames to hold the attention of the pupils . . . we can imagine very few youngsters (and oldsters!!) who would not be intrigued by this fascinating hobby and the attendant models.

At the Tank Museum

For the wargamer and military modelling enthusiasts, we would recommend a visit to the Royal Armoured Corps Tank Museum at Bovington Camp, Dorset. Continually being improved and with many new items being added, one can spend hours browsing round the mass of arms and armour. The displays are all carefully marked out in types by period and many consist of cutaway parts enabling one to study the internals of many of the exhibits.

The staff are most attentive and seeable to answer even the most difficult queries almost off hand . . . similarly, one can purchase many publications and photographs invaluable to those seeking information on super-detailing military models. Also available are many 1/72 scale drawings of various types of armoured vehicles ranging from the British Heavy Tank Mk. I-LIV of 1914 and others of the First World War to present day Conquerors, Chieftains and their German counterparts - PzKw.1 and many variants up to the PzKw Tiger 'B' (Royal Tiger – American Chaffee M.24 to the M.10 Pndr or 3 in. S.P., and Franc'e AMX 13 and Panhard E.B.R. Armoured Car and Japanese Tankette Type 97 and Medium Tank M 2597 Special. Armoured cars and S.P.'s are also available in the same series.

Each individual drawing costs 1/6d. and we would point out that in some cases – as with the PzKw.1 Commander Model tank thure are *THREE* separate drawings as there are with the Sherman and 1c types, where one has to send 4/6d. or 3/-d. for the complete set of state if just the basic outline drawing *ONLY* is required. A list of all currently available drawings is available and sold under the title of

Model Makers' Diagrams

Each contains several views, including the conventional side, front, plan, rear, plus scrap views and separate inset drawings showing differences in variants etc. All are copyright of the R.A.C. Tank Museum but arrangements can be made should one wish to reproduce these in print, etc. Photographs of many of the exhibits may also be purchased, as may a wide variety of booklets covering the Regiment and the Museum with several new titles added regularly. Among the most useful are:–

Illustrated Guide to the Royal Armoured Corps Tank Museum and Royal Tank Regiment Museum 1969 edition, Tanks of Other Nations – GERMANY.

– an illustrated guide to the German tank from 1917–1919 to date illustrated with many new photographs complimented by a most exhaustive historical details of the breakdown of German and technical text which also includes army units and how they were used in battle etc.

Tank Museum in Colour

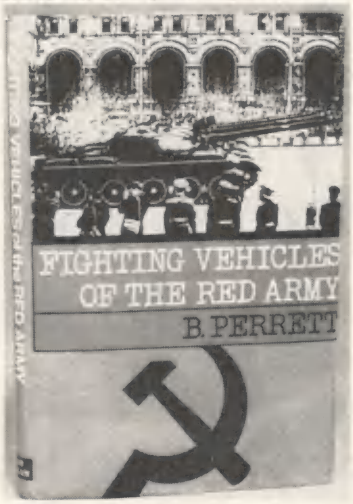
Another excellent guide with numerous photographs in superb colour showing many of the tanks and armour items included in the Museum displays. We suggest that you write to the Curator, R.A.C. and R.T.R. Museum, Bovington Camp, Dorset, asking for lists of books and other items on sale. Do not forget to enclose a stamp to cover their cost and postage as the Museum is supported largely by public subscription. Set in the beautiful Dorset dales, this spot makes an ideal tourist attraction throughout the summer months and there are excellent hard standing car parking facilities. Cameras *ARE* allowed as all exhibits are outside the normal 'classified' status. Open daily from 10–12.30, 2–4.45 p.m. Saturdays, Sundays and Bank Holidays 10.30–12.30 2–4 p.m. Contributions, no matter how small, are welcomed and go to the Royal Armoured Car Benevolent Fund – look for the 1914 shell-case near the shop just inside the main museum entrance or the red and yellow collection box by the main door.

Fighting Vehicles of the Red Army
by B. Perrett

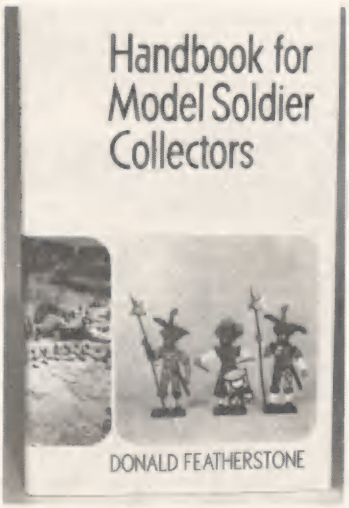
Published by Ian Allen Ltd., Terminal House, Shepperton, Middlesex. Price 25s.

This goes a very long way towards enlightening the reader on the history and development of the A.F.V. in the Soviet. The 60 photographs are of a very good quality, and not just of the type found in recognition manuals, and many of them are undoubtedly new and from a very wide variety of sources – they cover A.F.V., including A.P.C.'s, and in the latter sections, missile carriers ranging from the first Russian tank – the M17 of 1919 – through the licence-built and 'copied' armour ad B.T.'s and T's of the Second World War, up to the recent JS.III's and the T.62.

The text is written in a most readable manner, facts and figures being included in chronological order with the main story, and apart from the chapters in which he describes individual types of A.F.V.'s Mr. Perrett also delves into such previously little known



subjects as Gunnery, Tactics and Training, and ends with an intriguing chapter in which he gives straight comparisons based upon his own researches between the potential threat and usage of the weapons he describes, and the manner by which N.A.T.O. forces could balance the Soviet numerical superiority. Reading this section of the book one is made aware that the days of semi-illiterate peasants being forced into battle by pistol-waving Commissars are over and that the present-day Russian 'tankers' are a well trained, highly disciplined fighting force that must be highly regarded. A fascinating book which deserves a far wider reading than that which it is likely to enjoy, both as a concise and readable story of tank development in the Soviet as one can obtain. The modeller or wargamer will find the photographs and technical analysis of immense value.



Handbook for Model Soldier Collectors

by Donald Featherstone

Published by Kaye & Ward Ltd., 194-200 Bishopsgate, London, E.C.2. Price 30s.

Donald Featherstone is, of course, already well known for his earlier books such as *Wargames, Tackle Model Soldiers this way* and similar titles, but his new book is a veritable 'Cooks Tour' of the world of model soldiers. The 156 pages and the 16 photographs all direct the reader as to what to buy, where to buy it, who makes it and similar information. Far from being simply a catalogue of militaria in miniature, it also tells in a most entertaining manner the story of how, for example, the famous British firm of Britains Limited came into being, how to photograph military models, listings of military band music available on L.P.'s, and a brief resumé of the world's leading miniature soldier and armour kit, and model manufacturers who specialise in one particular aspect of the hobby. For 30s., this is one work of reference that IS invaluable, and our copy has already proved its worth by providing us with addresses of two companies of whose products we had no knowledge at all hitherto. A real must for anyone even remotely interested in miniature military modelling or collecting, it covers every facet, from historical figures through armour, artillery up to a guide as to whereabouts of Military and Regimental Museums in the U.K., along with similar establishments in 20 countries overseas.

Fighting Colours

by Michael F. Bowyer

P.S.C., London, 35s.

Readers of *Airfix Magazine* will recall a series of articles by M. J. F. Bowyer under the title of 'Fighting Colours', which appeared first some two years ago in that publication. At that time it was obvious that here was material that would one day be put into book form and this has now been done. The original title **'Fighting Colours – RAF Fighter Camouflage and Markings 1937-1969'** is the same; but new material has been added covering the years 1950 to 1969. Published by Patrick Stephens Ltd., London, at 35/-, the one hundred and ninety two pages (5¼ x 8¼ inches) include one hundred and fifty seven photographs with twenty six excellently detailed drawings by Alfred Anderson. These illustrate such features as camouflage patterns and finishes, squadron markings and insignia and other relevant marking information. The end jackets contain drawings of representative post-war squadron heraldry and also badges of rank as marked on R.A.F. aircraft plus drawings and dimensions of the different styles of R.A.F. roundels and fin flashes. The back end jacket has twenty drawings illustrating the tailplanes of Gloster Meteor jets to show the application of squadron colours thereon.

C. O. Ellis, Editor of *Airfix Magazine* writes an introduction in which he explains that much new material, together with additions and corrections to the original article has been added together with extra drawings by Alfred Alderson. Most have been seen before in the aircraft 'Profile' series of articles.

The text covers not only the chronological development of camouflage and markings of fighter aircraft of the R.A.F., but also includes at the end of each chapter a summarised account covering the air operations during the period under review. As usual, Michael Bowyer seems to have an inexhaustible source of references for aircraft serials and quotes some of the relevant squadron code and call sign letters. Appendices include *'Characteristics of Royal Air Force Fighters 1931-1969'* with tables of performance figures, dimensional details and weights and armaments and *'Paint Shades used for R.A.F. Fighters'*. This lists the official Air Ministry shades, quoting the matching paint as produced by Humbrol, Airfix, Model colour and Official. Appendix III is *'R.A.F. Fighter Squadron Identity Letters September 1939-July 1950'* and finally Appendix IV containing a listing of *'Airframe Serials of R.A.F. Fighters 1937-1969'*.

Mr. Bowyer is bold and brave enough to state that this is 'probably the most detailed and accurate volume yet to appear on this subject'. (Author's preface). But the whole matter of R.A.F./M.A.P. designation for camouflage colours remains confused. For example, on page 34, when attempting to describe the particular colour known as *Sky* he says *'For the most part this Sky tint meant to be blue was more accurately a pale shade of green sometimes having intoned a blue tint commonly and fairly accurately called duck egg green'* . . . going on to state that – *'Most fighters eventually settled for this, and by the end of August it was the most common shade. IN LATER YEARS THE OFFICIALLY DESIGNATED SKY TYPE "S" (S DENOTES SMOOTH) WAS A MUCH LIGHTER TONE THAN THAT OF 1940'* – (our capitals).

By implication, one arrives at the conclusion that the contents of the book are taken by Mr. Bowyer from his own notes to the exclusion of cross checks or reference to existing official documentation. It is stated that the contests will contradict some ideas held for far too long. But it does not help the historian or the modeller when repeated references are made to *Duck Egg Green* as an underside colour. This may have been Mr. Bowyer's own nomenclature and indeed, the shade to which he refers did have a green tone, but all official sources and many of the service personnel of the period refer to the shade as *Duck Egg Blue*. This term being in common use from May 1940 when the M.A.P. Specification for camouflage of R.A.F. aircraft refers to Duck Egg Blue (Sky Type 'S' in brackets after this) as being the official terminology of the undersurface colouring used on Blenheim Bombers. On 11th August, 1940, the term Sky Type 'S' appeared as undersurface colour for operational fighters and an explanatory letter from the M.A.P. to paint manufacturers and dope shop managers stated that from that date Duck Egg Blue and Sky Type 'S' were *one and the same colour*. Paint chemists and others who are experienced in cellulose and synthetic paints as used by the aircraft industry will explain the variance in undersurface shades as being due to the differences between field, or factory finish applied over the correct base paints and primers under near ideal conditions. Similarly, older aircraft, even as late as August 1940 aircraft with silver doped undersides were still being repainted at M.U.'s and when Duck Egg Blue/Sky Blue Type 'S' was applied over silver the resultant colouring could and did, vary in tone. The modeller can try these combinations for himself, take Humbrol Sky Type 'S' which is a match to original M.A.P. colour swatches we have examined and then paint over (a) silver, (b) black and white painted plastic, and then paint over a light grey paint and compare the different shades that will result!

Mr. Bowyer states categorically that 'S' denotes smooth finish. The letter 'S' became the standard suffix after the D.T.D. paint specification number and indicated, in fact, that the paint was a *Synthetic* material as distinct from *Cellulose*. Reason being that one could

not apply repairs with cellulose dope over synthetic, though the reverse was possible. Identity of the dope was essential.

It is obvious that Mr. Bowyer spent much of his time recording serials, colours and codes at a time when we in the Service were forbidden even to keep a diary, and it is puzzling to see quite how he managed to visit all the airfields without apparently suffering from the very strict wartime restrictions. Cameras and sketching were strictly forbidden to Servicemen. Those of us who are challenged in memory only have their training notebooks to substantiate contradiction. In the chapter *'On the Offensive'* we read that in December, 1940, home-based fighters had the undersides of the port wings painted 'Night' (Matt black), and the author goes on to say that 18th February saw a revision. *The black undersurface was now to be removed, except on the Whirlwind where the black and blue undersurfaces were retained for recognition purposes.* However, no mention is made of the official order that from 1st April, 1941, the entire undersides of fighter aircraft (and some others) were to be painted Sky Type 'S'. In 1942, the Whirlwinds were Sea Grey Medium underneath like most other Fighter Command Aircraft.

We deal at length with these controversial points to illustrate that to rely solely on one's own visual appreciation is not always definitive. Bearing in mind the author's very real interest in the subject and his obviously better than average facilities for studying the subject, it is surprising that he does not quote the official orders and specs. for this controversial matter of exact paint shades. (History slides by as we look at it. Who, today, is recording all the Canberra camouflage variations and the Twin Pioneer/Hercules/Beverly/Andover anomalies? Camouflage will always be controversial as long as the AP or D.C.I. is badly expressed and the Engineering Officers can interpret instructions incorrectly). We know that official documentation is not an infallable source of reference, but similarly suggest that neither is personal observation without the back-up of some reference to archives, etc. This book fills a gap in the modellers' search for information on this fascinating subject, but it would be wrong to suggest that it is the ultimate.

Coverage of the R.A.F. Fighter aircraft operating overseas is understandably limited, particularly that relating to aircraft operating in South East Asia Command (SEAC) and there is evidence of guesstimation. For example – we imagine in reference to Lend Lease Thunderbolts – Mr. Bowyer states that *'Stocks of American paints are known to have been drawn upon, so that fighters had shades other than those specified for British aircraft'*. This may be true in the odd instance, but factory drawings and technical orders for R.A.F. P-47 and P-51 contract aircraft specify the precise shades to be used giving the M.A.P. designation and quoting the American epuivalent. Except in the case of the P-51D where Olive Drab was suggested to be used instead of Dark Green, all other colours, Dark Earth, Sea Grey Medium, Sky Type 'S' matched the M.A.P. colour swatches exactly. F.S.595, the American bible of colour swatches for Service use has chips for the British camouflage shades which match those of the M.A.P. precisely.

These comments may be regarded as nitpicking; but it does not seem all that long since we hung up our boots and signed the last F700. That alone we feel entitles one to challenge a fellow enthusiast on what nas become a very confused subject.

Summing up, the combination of photographs and drawings with very interesting and factual appendices plus text makes useful adjunct to information already available on the subject. Modellers will find hordes of references and fascinating tit-bits of gen. The pages are tightly packed with material that will be a talking point for many a modellers' meeting and at 35/– represents a most inexpensive stimulant for long bouts of aeromania.

A newcomer to the ranks of military literature is Almarks Publishing Company, 104-106 Watling Avenue, Edgware, Middlesex, who introduce on 30th November, 1969 the first title in a new 'Weapons Series' of books, price 12s. 6d. per copy

American Armoured Cars 1940-1945

by Chris Ellis and Peter Chamberlain
artwork by K. M. Jones

This is a soft-covered publication on glossy art paper measuring 9½ x 7¼ in., with 24 inside pages and a full colour inside, and outside card cover.

The subject matter is very well presented with a complete coverage of development and design for the American designed armoured cars used by the U.S. and British and allied forces during W.W.II. Excellent photographs are supported by five pages of 1/48 scale drawings for the T.17E1 *(Staghound 1)* and T.17E7 *(Staghound AA)*, together with similar drawings of the M8 *(Greyhound)* and M20 Armoured cars. These drawings are presented over a two-page spread, and each vehicle type is illustrated with accurate scale five views. In addition, there are other line drawings showing such features as stowage arrangement layout for the T.17E1, plus reduced 1/76 scale drawings of the *Staghound* and *Greyhound* variants.

In addition to these, we also find on the inside front and back covers coloured four and five views of the *Staghound* and *Staghound AA* in markings for the Royal Dragoons and Belgian Armoured Brigade Group, plus R.A.C. Training Wing Cairo 1946, together with various close-up drawings of the various Formation, unit and other identification badges. The scale line drawings are excellent, and ideal for anyone wishing to scratch-build these vehicles to 1/76 scale or to use as a reference when modelling the UPC 1/40th M.20 or Tamiya 1/35th M.6 cars. The coloured drawings are obviously only intended as a general guide to external finishes, as the artist has used considerable highlighting effects which tend to obscure some detail. At 12s. 6d.; this is an excellent publication, and we look forward very much to future titles.

2nd Aircam Specials Finnish Air Force 1918-1968

Text by Christopher Shores and illustrated by Richard Ward

Price 21s.

Following the now familiar format of *Aircam* publications this particular volume is a most welcome addition to the range, as it is the first attempt to cover in text and photographs the machines and operations of this colourful air force. The text is well written and somewhat lengthier than usual. It includes a section on camouflage and markings. The photographs are really magnificent. They derive mainly from private sources from Finnish archivists, and few of them have been seen outside of Finnish publications. Many readers will be, perhaps surprised at the very wide range of types flown by the Finnish Air Force. For the modeller seeking a 'different' or unusual finish for such models as FIAT G.50, Gladiators, Blenheim (short and long nose), Ansons, Hurricanes, Lysanders, Hawk 75's, Do. 17's, Ju 88's and many more, then the colour section will provide them with markings and camouflage schemes, the colour pages being all side view illustrations. Plan views in black and white form a separate section. All the relevant patterns of camouflage and variety of applications of national markings are included.

Captions to the photographs are detailed. Mr. Shores has, as usual, ex-

Spread of typical illustrations in Aircams Finnish Air Force Special.

pended considerable time and effort to ensure accuracy ad authenticity for the historical facts and figures that are quoted. The separate insert page contains an invaluable cross reference to the book proper, including such items as lists of types flown and numbers in service,, plus Finnish Serial codings, a list of top scoring Finnish pilots in both the 'Winter' war and the 'Continuation' wars – it is not perhaps generally appreciated, for example, that the top Finnish 'ace' in the latter conflict shot down 92 enemy aircraft, or that the Blenheim was nicknamed *Tin Henry* – many other fascinating details come to light as one studies this book, and we are sure that kits of many of the types illustrated will be in demand, and the historian will find much that is completely new.

Further titles announced for release in the new year numbering from 11 to 24 inclusive, are: B-24 Liberator, Lancaster, Ki.43, Republic F/RF-84F Thunderflash and Thunderstreak, B.17 Fortress, Zero-Sen, N.A. Sabre F-86A-H Vol. 1, Ki.27, Hellcat, F-86A, Ki.61/Ki. 100, B-25 Mitchell, Vought F4U-Corsair, and the Hurricane Mk. I to IV, all of which remain at 21s. per volume.

In addition to these, there are two further *Aircam Specials* due. For Spring 1970 release is *Sharkmouth*, covering the application of this sometimes startling marking from W.W.I when introduced by the Imperial Air Service to present day; the other volume will cover the *Czech Air Force* – from W.W.1 to date. Both priced at 21s.

Focke Wulf FW 190 and Ta.152 Described. Part Two

by Anthony Shennan and Geoffrey Pentland

Published by Kookaburra Publications of Dandenong, Victoria, Australia. From Kookaburra direct, or their distributors at $1.95 U.S.A.; $1.25 Australia, or 8s. 6d. U.K.

The wait has certainly been worth the while, as this slim 30-page book is a very fine effort, particularly when one realises what little there is available on the later variants on the Focke Wulf and Kurt Tank designed fighters.

The striking colour photograph on the cover shows a line-up of 190G's of I/SG.1 in Poland, and although their scheme is by now well known, it is pleasant to see this in full colour on a photograph. This is but a portent of things to come. The book covers briefly, but comprehensively the further development of the 190, from the 190B series up to and including the Ta. 152H-1's, each variant being the subject of a short technical description. This in many cases enables one to identify the various versions almost at a glance. It is in the excellent selection of black and white photographs backed by some fine coloured drawings, together with general arrangement drawings that this book comes into its own. Many new and rare shots of operational 190's are included (which also include D's and Ta 152's), while no less than 13 colour drawings, some side view only, others showing plan views, are included, together with a fine cutaway drawing by Anthony Shennan of the Ta.152C-1, plus two separate sets of five view g.a. drawings of the 190D-9 and Ta.152H-1. This is ideal for those wishing to super-detail the Airfix kit or scratch-build a Ta.152

Four tone drawings of 190G-3, A-8, 190D-9 and Ta.152H-1 add a wealth of new detail to what is already available to the modeller and historian.

The most interesting part of the book to this reviewer, however, is page 19, on which Kenneth A. Merrick gives his opinions in regards to Luftwaffe camouflage as applied to fighters for the entire war period . . . and promptly breaks new ground by suggesting that the previously accepted 'standard' splinter pattern of 70 black-green and 71 dark green were replaced in late 1940 or thereabouts by a combination of 71 dark green, and perhaps instead of 70 black green, No. 02 RLM Grey! He explains his reasoning, including the remark that having photographed models painted in 02/71 the contrast

thereon is comparable to that seen on photographs taken of the original aircraft, and it is on this comparison that he bases his suggestion that on FW 190's this 02/71 combination replaced that of 70/71, adding, of course, several other most interesting observations to back up this statement.

We know that Official RLM Colour Specifications, together with matching 'chips' were issued under the designation 521/1 of 1938 which was updated in 1942 when certain other shades were added, but certainly in 1944 officialdom in the form of *Der Flugzeugmaler* dated Berlin, 1944 calls for *'All land based aircraft OTHER than fighters and zerstorers to be painted 70 and 71 green camouflage patterns'*, going on to state that *fighters and zerstorers* (which would include the FW 190 and, for example, Bf.110's) *were to be painted in 74 and 75 Light and Dark GREYS, with Light Grey 76 undersides*. We have seen, but alas, do not have available now, original factory camouflage drawings for Me.109E and F where 70/71 was certainly the specific upper surface colouring, with Hellblau Light Blue undersides, these dated 1940 and 1941.

One can read allied intelligence reports on crashed enemy aircraft wherein a reference was made to colouring and markings, and they do repeatedly refer to 'greenish grey' and/or 'light olive green'. The writer recently examined a FW190 two-seater trainer which did appear to be 71 dark green and 02 RLM Grey – so, as usual, one is left with the conclusion that as always, there were exceptions to the rules.

However, to return to Mr. Merrick's comment, the publishers at Kookaburra offer to present FREE a complete set of *ALL KOOKABURRA books published to date*, plus free copies of all their forthcoming titles over the next two years to anyone who can provide documented proven evidence of the facts as stated by Mr. Merrick, or contrary information to this! We certainly hope that someone will be able to claim this worthwhile and generous prize, so that once and for all this confusing subject can be written into the books in an accurate banner.

Even without this somewhat surprising offer, this book is a 'must' for anyone with an interest in the FW190/ Ta.152 aircraft, and for 8s. 6d. it is among the finest value offered today.

Companion release to the 190 publication is

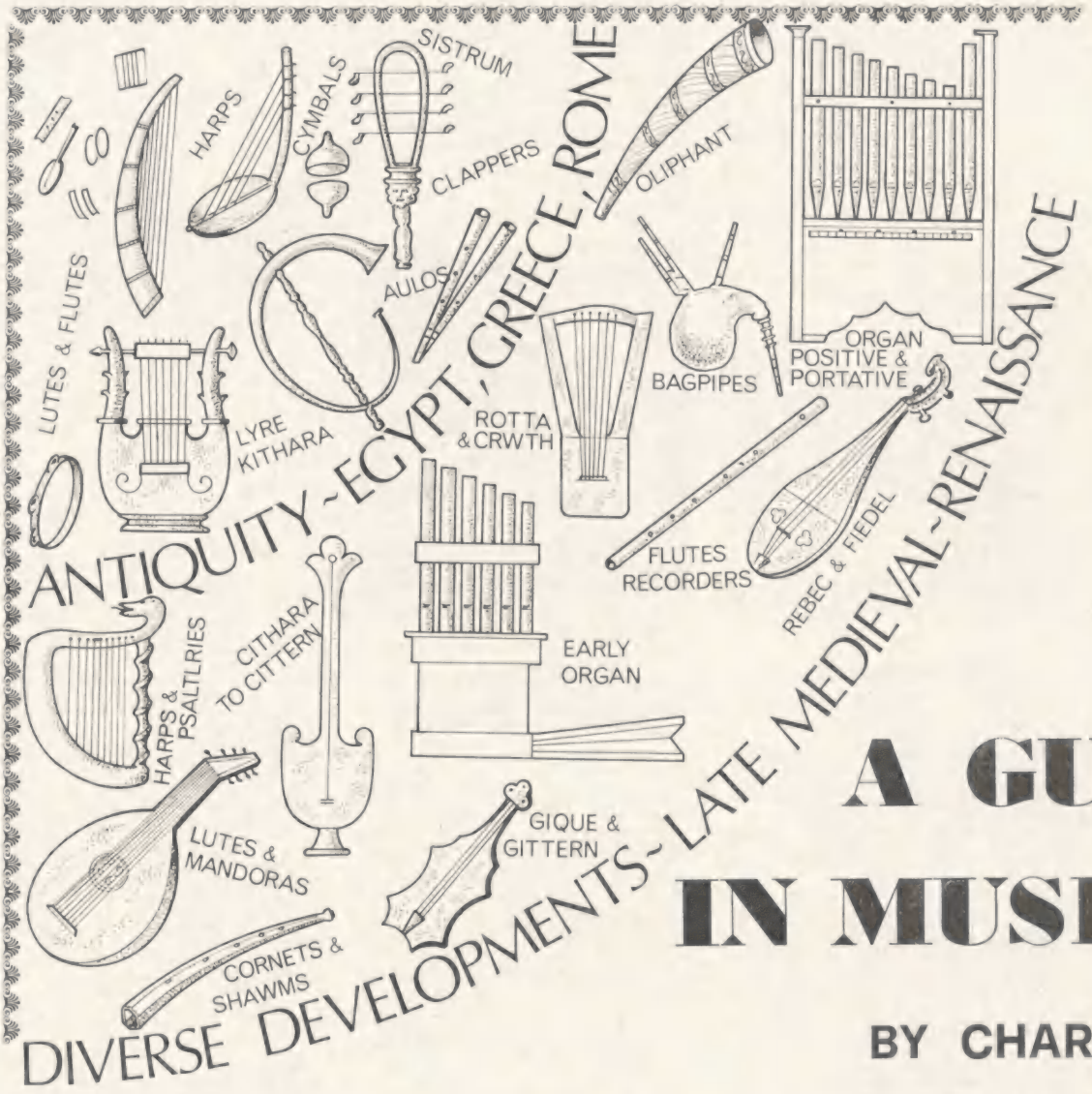
Republic P-47 Thunderbolt Described

Part One by Geoff Duval

8s. 6d. in the Kookaburra range.

Mr. Duval is, of course, known for his drawings contained in 'Aeromodeller', among them the P-47, and obviously he has specialised on this particular aircraft type. The book takes the form of a record of the development and operational record of the famous 'Jug', and like the 190 book, contains many new and interesting photographs. Add to these eight separate side view drawings in full colour, of a wide variety of Thunderbolts, showing innumerable alternative finishes and markings, together with a detailed cutaway drawing of the P-47C, plus a centre spread four-view and separate single side view general arrangement drawing. Being Part One on the type, in the main, details offered refer to the 'razorback' version, and we were somewhat surprised to find only two rather mediocre photographs of P-47's in R.A.F. service (pages 9 and 10), but we hope that more will appear in Part Two. There are no controversial suggestions in regard to camouflage of the P-47. We particularly like the photograph used on the front cover of the book, as this clearly shows the original yellowy-green tinge associated with the basic zinc chromate protective coating, the insides of undercarriage, the edge of the undercarriage red. This is not, in fact a finishing paint, but an anti-corrosive, and when used for cockpit interiors, etc., was usually mixed in equal proportions with the darker camouflage colour of the aircraft which usually produced the more commonly recognised zinc chromate interior green shade, matched incidentally, by the Humbrol authentic camouflage colour paint Italian Air Force mottle green. As with many 'mixed' paints, the actual shade of interior green varied, depending upon what colour was added to the original zinc chromate material.

At 8s. 6d., this is remarkable value for money and certainly well worth adding to one's library. Part Two is being eagerly awaited.



A GUL
IN MUSIC

BY CHARLES

who conducts a unique little known subject of musical

IT COULD be a debatable point . . . whether the modelmaker is reducing the size of a subject . . . or enlarging himself? Certainly the horizons are nearer and even centuries of time can be given the dimension of a showcase and its 'rich spoils' can be harvested in hours, rather than years. In size, the whole 'gamut' of the instrument maker can be contained in the Lilliputian scale (one inch to one foot) where it is not unreasonable to consider a piccolo at only one inch and the massive concert organ can replace the aspidistra without penetrating the ceiling. So, at the start, we can see a possible approach to this subject, although scales should be applied to particular terms of reference rather than being generally inhibitive.

Few subjects offer such infinite variety or more pertinent use of materials; whether this is paper, card, plastics etc., or the natural materials of full-sized instruments. Wood will cost a thousand pounds an ounce . . . if cut from a Stradivari . . . but ivory slips from old piano keys could become the ribs of a luxurious lute. Materials which are themselves expensive will be relatively cheap in these reduced quantities – perhaps as offcuts. Skill? At least a seven-year apprenticeship for each instrument, or that cunning – peculiar to model makers . . .

Although in turn, one instrument differs from another, each has demanded the highest skill of the craftsman, whether to elaborate or to simplify and this would be recognised by instru-

ment makers. If personal choice lies in one direction, it is as well to appreciate the efforts made by others as so much can be missed and opportunities lost where any 'built-in' prejudice exists. The intention of these articles is to establish and draw attention to relationships that exist in and between instruments; as common factors are of interest and similarities often serve to enhance desirable differences.

The enthusiast may choose to specialise on one instrument or the work of an individual craftsman . . . or he could try to complete the story of a particular age in a continent, country, town or even a village. The literature of music (including instruments) is extensive and I shall be referring to appropriate books from time to time and these, of course, can be had from the public libraries. It is intended to thread through historical writings rather than to duplicate them, as here, we are more concerned with principles, forms, sizes and materials – perhaps more with imaginative approach to methods of construction where individual innovations should not be scorned.

LIVER KELAND

WOODLAND

excursion into the modelling historical instruments

Although it would be unwise to state that few models exist, accurate scale models are as rare as the instruments themselves, and examples met with tend to follow the style of miniature pieces of furniture – not to be faulted on scale – being mainly survivors of economical exercises for apprentices. It will be appreciated that actual instruments are often ultimate refinements and any reduction in size carries a loss of function with it, especially in regard to pitch and the limits of scaling relates to materials. The scale model will almost certainly be a non-working project but this does not close the door on those who are tempted to build playable examples and the simplicity of early types will no doubt encourage efforts in this direction.

The stop labels *'Digeegen'* (8 ft.), *'Prinzeegen'* (4 ft.), *'Splutz'* (2 ft.), and *'Gagglesplutz'* (76 ranks), etc. will be familiar to all organists, but how deeply should the model maker delve into musical technicalities? Although actual measurements may be given for each instrument, it is otherwise desirable that pipes, bridges, frets, etc., are plausibly displayed, especially where instruments are not conveniently accessible or where details have to be gleaned from a hazy picture or photograph. It is therefore proposed to deal with general principles affecting most of the instruments – introduced into the text as appropriate.

Such issues could be well and truly dodged on the basis that we are concerned with form rather than tone, but it would be unrealistic to assume that these points will not arise and wholly undesirable that our interest is limited to the dispassionate completion of a model project. Let the arguments rage, but never forget that the greatest adventure is the search for truth – regardless of how many discretionary expedients (shameless lies) you have to use on the way! Well . . . alright . . . I will hasten to apologise for 'cooking' the stop labels in the previous paragraph . . . a hard-to-break habit acquired in the process of collecting old violins!

Music has its many moods and its instruments can be built ponderously or with carefree abandon. (Many a'hobgoblin lurks amongst the acanthus leaves to tantalise he of the austere demeanour). Whilst it is beyond the realms of probability that one would find clarinets, flutes and violins in walking sticks (several examples exist, of course!) there are some surprises in store by way of mischievous flourishes that may include devils, dragons – and worse still – faces of us! The great Leonardo Da Vinci made a Lira in the shape of a horse's head and the human 'statistics' have not been entirely neglected! So why not what! There are recordings of most instruments and who would deny the charm of an evening spent amid the model instruments, each sounding its own voice in turn?

As a general rule, the policy is to present accurate drawings, measured or otherwise, gleaned from actual instruments, but it will be appreciated that in this way, little light would be shed on the 'Dark Ages', Late Medieval Period and the early years of the Renaissance. Here we have to rely on painting, wood and ivory carvings, sculptures, manuscripts – perhaps just an obscure reference. We shall attempt feasible recreations and no doubt readers' comments will lead to modifications as acceptable to all concerned.

A first subject

The subject I have chosen for this introduction is based on the instrument shown in the very famous painting by Hubert and Jan Van Eyck. (Ghent Alterpiece, completed 1432). Although there are some obscurities, details suggest that an actual instrument was the model. The beautiful and pious lady will never move to reveal the symbolic designs for the remaining four of the twelve Apostles or the compass of the keyboard. Neither can we look behind to ascertain details of wind supply – nor can we be quite certain of sizes. Has the keyboard suffered from damage and restoration? Let us cast our eyes over some four hundred miles away to Sion, Valais, Switzerland, and meet the twelve Apostles again – occupying the same position – but in a 'Triptych' case – a preview of the Renaissance form? The same symbolism carries us forward to the year 1511 . . . .

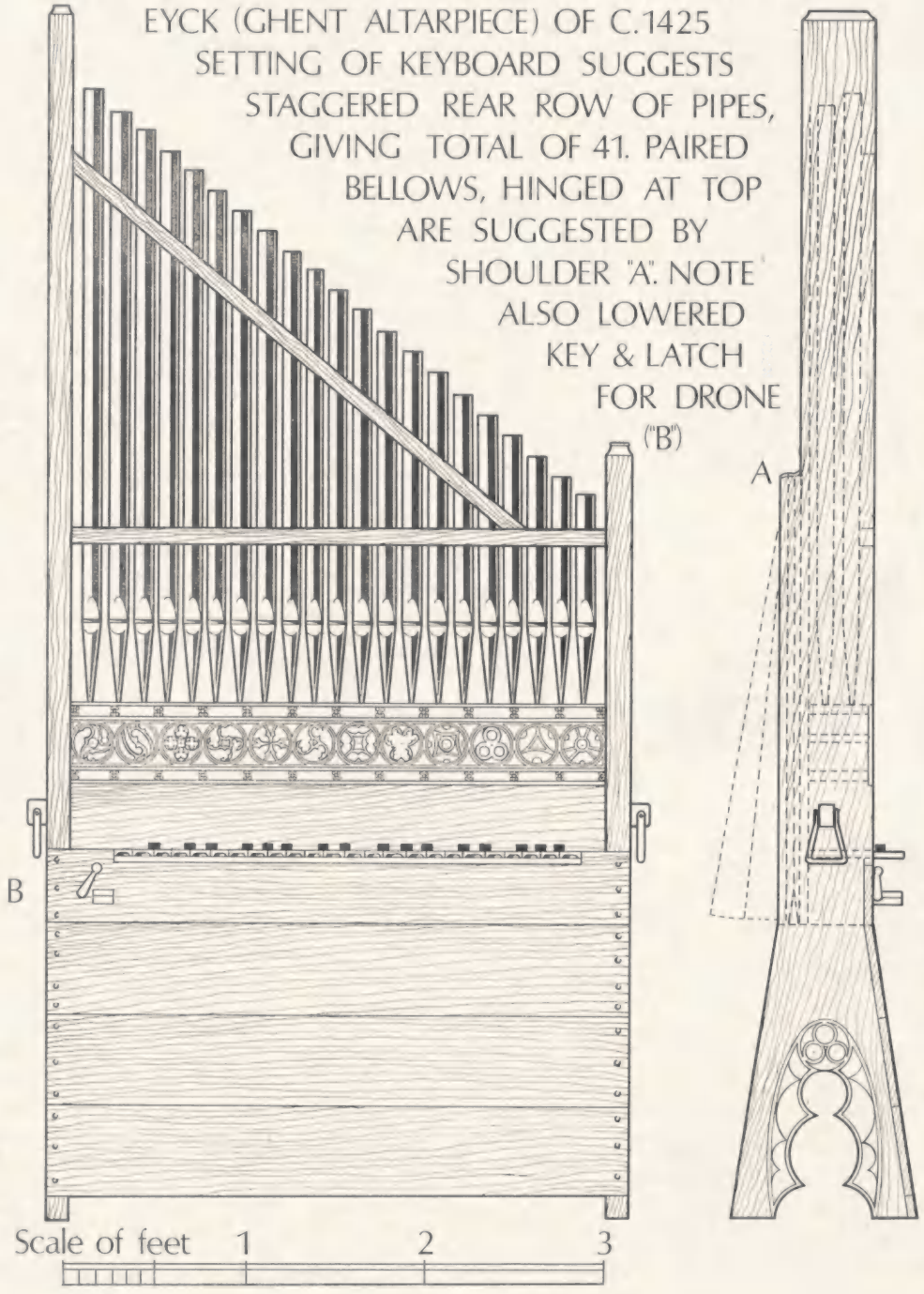
Who were the particular friends of Grimaldi? Who invented the violin and who knows more about musical instruments than the furniture beetles? When did the twelve apostles actually come to England? These and many other fascinating questions become the 'stock in trade' of the enthusiastic ORGANOLOGIST.

ONE-TWELFTH SCALE DRAWING OF 15th CENT. ORGAN ON NEXT PAGE

POSITIVE ORGAN 15TH CENT.

BASED ON PAINTING BY HUBERT & JAN VAN EYCK (GHENT ALTARPIECE) OF C.1425

SETTING OF KEYBOARD SUGGESTS STAGGERED REAR ROW OF PIPES, GIVING TOTAL OF 41. PAIRED BELLOWS, HINGED AT TOP ARE SUGGESTED BY SHOULDER "A". NOTE ALSO LOWERED KEY & LATCH FOR DRONE ("B")



NEW to YOU?

MONTHLY REVIEW OF NEW PRODUCTS CONDUCTED BY BOB JONES OF I.P.M.S

AS MOST people had anticipated, the *Lockheed Hercules C-130K* announced in the 1969 catalogue as produced by **AIRFIX** turned out to be their pre-Christmas release and we immediately suggest that this is one of their finest 'big' kits released to date.

Moulded in mustard-yellow plastic, the surface detail is perhaps fractionally rather heavy, but remember that as the aircraft has a high gloss finish when in RAF service anyway, if one uses matt paints and then obtains this gloss by using clear varnish the apparently heavy surface detail is somewhat covered by painting.

Assembly of the kit is quite straightforward and despite its size the parts fit very well indeed. Some slight trimming was necessary on our model to ensure a snug fit for the tongues on the tail and mainplanes. The cockpit and other transparencies are excellent – a considerable improvement, in fact, over those in other recent Airfix aircraft kits – and the various fuselage side doors and main rear-entry ramps fit very well indeed, so well in fact that a pin is required to winkle 'open' the ramp when this is in the 'closed' position. The interior of the cockpit contains pilots' and crew seats, together with instrument consoles, while the rear fuselage has a fully detailed floor and ramp-fittings which accurately represent the ribbed 'flooring' and walls as on the actual aircraft.

A very neat touch is the inclusion – complete – of the kit for the Bristol Ferranti *Bloodhound* guided missile together with the attendant *Land Rover* and personnel – which makes a topical and typical internal 'load' for the model. The instruction sheet is multi-lingual and thus one does have to follow the various stages of assembly very closely, particularly Stage 6, fitting the various doors, undercarriage housings and so forth.

The only real criticism of the kit must be directed towards the decals. These are adequate but as seems common with those in other Airfix kits they are rather too bright in colour and the stencil instructions on the escape equipment, such as Fire Axe and extinguisher is unreadable – though this may be a fault peculiar to our sample.

We were most surprised to be unable to qualify the camouflage pattern suggested on the painting instructions with any C-130's which we have seen . . . this appears to be a guestimation of that used on the real aircraft and we earnestly suggest that readers obtain a copy of *Airfix Magazine* for November 1967, in which a reproduction from the original manufacturers camouflage pattern drawings are given.

Also the colouring of the R.A.F. 'Herky-Birds' is *not* dark earth and mid-stone as suggested by some sources but is dark earth gloss BS/381C No. 450 gloss and BS/381C 361 light stone gloss with gloss black undersides. These shades are best matched by using Humbrol *matt* R.A.F. dark earth HB.2 and Italian Air Force HI14 sand with Humbrol gloss black undersides. Over this, give the entire model a thin coat of Humbrol gloss varnish. The area over the top of the forward crew compartment/cockpit is, of course,

Rear view of the excellent model of the C-130 from the new AIRFIX kit showing the correct camouflage pattern, details of which appear in the text. At right, the well detailed interior to the fuselage cargo bay is clearly visible also the ribbed 'floor' to the ramp. Model made by R. Adams.

white. The serials in the kit are near enough the correct shade of grey for those carried beneath the wings while the 'odd' roundels, three in red/white/blue and one in red/blue are also correct. The nose 'radome' should be matt black but Humbrol railway enamel black will provide a more accurate representation of the finish on the real C-130's. Presumably in accordance with a recent Ministry of Defence (Air) Order the tips of the *propellor blades will be in the new finish*. This will be reading in from the tip a 4 in. wide band of Post Office red, then a 6 in. band of white, then a third band of 4 in. width Post Office red again; this instruction indicates that on aircraft where the propellor blades or tips of same are *forward* of the cockpit pit then the *rear* of the tip of the blade will remain yellow. Where the tips are behind the line of the cockpit (as on the C-130) then these bands of red and white will appear on both the front and rear faces of the propellor tips. (As a matter of interest the tips of helicopter blades will remain yellow.)

Providing one takes care to study the various stages of assembly on the instruction sheet included with the kit, and also to fill and trim any joint lines or similar surface disfigurement, and exercises patience in painting the model, utilising the suggested colour notes offered here, one will have a truly impressive model of one of the most successful of today's military transport aircraft. Remember that on a kit such as this it is worth that little bit of extra care and patience as a 1/72 scale *Herky-Bird* is bound to attract the attention of even the most blasé member of one's family or friends. We fancy it is the first of many bigger kits from Airfix. One point – watch your fitting of the wing tanks – which should be horizontal to the ground line.

We are still receiving for review new items obviously designed to fall in with the *Battle of Britain* film and its attendant publicity.

FROG have introduced some of their kits in two-some boxed sets: These being the *Spitfire/Ju 88, Blenheim Mk. 1/Bf.109F* and *Hurricane IIC/Ju 87D*, each set retailing at 10/6d.

For the extra value over the combined price of the two kits, one receives a most attractive box, the front of which features an excellent action painting featuring the aeroplanes provided. One is given a plastic picture frame into which this box top illustration is placed and two display stands which also fit on to the frame. The models may then be mounted on these and the whole hung on the wall of one's den or office etc. The frame is a sturdy unit moulded in polystyrene with a faked wooden 'grain' and colouring, which from a distance looks like an expensive picture surround. The kits for the aircraft are, of course, identical to those which one may buy separately. Taking into account the value of the kits plus the very high quality of the decals, together with the frame and stand mounts at 10/6d. this is good value for money and provides a new and unique method of display.

FROG kit on the SB-2 made up in the markings aplied to a machine captured and flown by the Luftwaffe. Note the optional ski undercarriage and 'open' rear gunner's position.

A completely new kit from **FROG** is to 1/72 scale for the *Tupolev SB-2 Katyuska* light-bomber, in their *green* kit series.

The SB-2 was a rather remarkable aeroplane as it served with many of the World's smaller Air Forces – besides of course the Soviet Air Force – and on several occasions was being flown by opposing air forces in the same war. The kit by Frog is somewhat of a disappointment in that the quality of moulding is not comparable with other contemporary kits and the surface detail borders on the extreme, considerable work being necessary to improve the fit of the component parts, and on many of these the detailing is either far too heavy or not sufficiently sharply defined.

It is a kit well worth having, as it is very unlikely that any other kit manufacturer will add this particular aeroplane to their range of models and the Red Air Force has been rather poorly represented in this scale. The box art is as usual excellent, and there are no less than four completely different colour schemes shown on the profile artwork. Decals are very good indeed and cover German, Czech and Soviet Air Force insignia, together with those of the Spanish Republican Air Forces. Optional parts include a choice of wheeled or ski undercarriage and both the two and three bladed propellors are provided, as is an external bomb-load. A pity then, that the basic mouldings are so very poor; considerable flash adds to the overall impression of a hurried kit and it is to be hoped that the recently improved standard of Frog kits will not be reduced back to this level.

Frog also released at the same time a revised version of their older *Boston* kit, now re-boxed as a *Douglas Havoc Intruder Boston*, this kit has had many of the inaccuracies in fuselage shape removed and the new decals and box art are for a *Boston III* of 22 Squadron Royal Australian Air Force, as flown by F/Lt. W. T. Newton, RAAF V.C. and a *Havoc Intruder* of 418 Squadron R.C.A.F. Bradwell Bay 1942. The former having the glazed nose transparencies overpainted as was common on many Bostons used by the R.A.A.F. Some slight corrections to the fin and wing shapes are necessary for absolute accuracy and the *Profile Publication* on the *Douglas Boston* is a useful guide for this. The kit is moulded in grey plastic and the tongues for attaching the wings and tailplane to the fuselage require some trimming before they will slot into place correctly. The remainder of the kit fits together quite well. The transparencies are good, with the various canopy and other framework lines somewhat more finely detailed than of those in the original kit.

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Decals are excellent and include the amusing personal markings for the R.A.A.F. machine of F/Lt. Newton, V.C. This is a welcome revision of the original Boston kit, and one that deserves a second look.

P39/400 production kit

The photographs and the review in Issue No. 4 of *Scale Models* was, as explained, based upon an early sample of this new addition to the range of **MONOGRAM** ¼ in. scale kits. We have now received the production version of this model, which is now on general release in the U.S.A.

The kit box art shows a P-400 of the 67th Squadron, 247th Fighter Group 13th A.F. on Guadalcanal, however, note that the box art is not strictly correct as comparing this with the very detailed painting guide included on the instruction sheet one will see that only the upper *Port* wing carried the U.S. insignia and *not* both upper wing surfaces as on the box. The kit includes extra or optional parts to make a choice from four different versions of the Airacobra. These are: a P-400 ex R.A.F. Lend Lease batch serial BW 151, *Hells Bells* as illustrated on the box top, the Shark's Mouth and all markings for same being included on the decals sheet, as are those for P-39L-1 in Red Air Force decor; a P-39D-1 also of the 347th Fighter Group, 67th Squadron as per the *Hells Bells* machine but without the Shark's Teeth and with the addition of a thin white fuselage stripe and the South version is a P-39D-3 of 54th Fighter Group, 57th Squadron, Alaska, Number '18'.

Unfortunately, the decals are not up to the usual Monogram standard; the Fighting Cockerel of the 67th Squadron being very indefinite and off register, as are the red stars, the yellow surrounds to which are badly off-centre; also the yellow used for the serials and as background to the name 'Hells Bells' is too pale and translucent . . . the decals do include stencil and wing walkway instructions, together with the manufacturers stencil on each propellor blade.

We especially like the excellent clarity of the instruction sheet, particularly in regard to the painting of the cockpit interior. The kit is one of the best we have seen from Monogram and it does make up into a delightful model, but don't forget to add weight inside the nose to replace the clear plastic rod which is suggested as being cemented below the fuselage to form a prop for the tricycle undercarriage. Certainly no one need worry lest the removeable panels detract from the scale accuracy or appearance of the model . . . these must be the finest fitting detachable parts of any kit and we still cannot find any other manufacturer who can produce such superb and clear cockpit canopies as those provided in these Monogram kits.

We recently received samples of the new *Conversion Kits* as marketed from Germany by Messrs. **AIRMODEL** (673 Neustadt/ Weinstr. Hans-Geiger Str 16-18, Germany). For some considerable time, modellers have been asking why someone did not produce simple kits containing conversion parts and obviously this German company has studied the market most carefully and released sets of conversion parts designed to be used with *AIRFIX* and *REVELL* kits.

German conversion sets marketed by Airmodel as described above. Moulding for the needle nose to go on Junkers 88A for the Mistel combination aircraft is seen on one pack.

Sample of the Prairial figure kits for 54mm scale now being imported and sold through Model Shop, Maidstone, and Argyle Models of Glasgow and Edinburgh. A review appears next month. Each kit contains a colour guide. Each figure is available in four poses.

of course, one could adapt them to suit kits produced by other manufacturers.

The first set of parts are for a *Messerschmitt Me. 262 B–1a/U 1* two-seat radar equipped Night Fighter; the component parts offered are complete and require no finishing other than any necessary slight trimming to fit on to the suitably modified basic kit mouldings. This particular set of components includes the radar array for the nose of the 262 and a very nicely moulded (not vacuum-formed, these are injection moulded parts in all cases) two-seater canopy complete with the rear fuselage fairings. One simply cuts away the upper rear deck of the Airfix *Me. 262* single-seater as shown on the Airmodel instruction sheet and fits the new canopy in place, adding such detail as seats and other interior cockpit fittings from one's own spares box or by building same from scratch. The instruction sheet, which is in German and English, gives details as to how the conversion should be done, and also offers a suitable colour scheme together with painting details for the completed, converted model.

Price for the Me. *262 B–1a/U 1* conversion kit is DM: 2.90/80 cents or 6/7d. in Germany.

The next conversion kit we examined was that for converting the **AIRFIX** *Dornier Do. 217E* to the *217 – 1 Night Fighter* version. This kit is even simpler than that for the '262 two-seater in that it only includes the 'solid night-fighter nose' (which replaces the front bombardier's window transparency from the Airfix kit) together with sets of machine gun barrels which fit into ready drilled holes in the solid nose piece. Again the instructions show a paint scheme suitable for the completed conversion, a *Do. 217 J–1* of NJG.1 as operated in 1942 all-black finish. Price DM: 2.20/60 cents or 5/–d. in Germany. The third and last kit we received was a far more ambitious item – the warhead nose cones together with the fuselage support struts for a *Mistel 1* combination. This is made by using the **REVELL** *Ju.88A* – and **FROG** *Bf.109F* kits. Again the instructions give details as to how the conversion should be undertaken and this is a comparatively simple operation. The warhead is the long 'Needle Nose' type and is accurate in shape and detail while the struts which support the 'Mother' *Bf 109F* are also all preshaped ready for cementing in position. Colour details and codes are given for the two aircraft which formed this weapons system. Price: DM: 3.40/90 cents or 7/9d. in Germany.

Other conversion kits are available or due including *Me. 110G-4, He. 111-4/H6, TF 104/F 104A Starfighter* and *Mirage IIIR*. For 1967 release we note the *Dornier Do.217K-1* and *Dornier Do.17P* both of which should prove to be popular subjects; we wish this enterprising company every success in their endeavour as although perhaps the more skilled modeller would find these conversions well within his own capabilities, they do save time and also encourage the less experienced or younger modellers to expand their modelling interest.

A catalogue of further conversion kits is also available and among many that we are most interested to see as 'future releases' are: *He.111Z–1 Double-Heinkel* glider tug, *Fiat G.91T* two-seat trainer, *Junkers Ju.188A–2, Fairey Gannet AEW.3, Douglas Skyraider AD–4/AEW.1* and *Hunter two-seater T.7*.

AIRFIX introduced their model of the *Saturn 5* rocket, or more correctly, Saturn 5 launch vehicle, at a most opportune time, to coincide with the Apollo 12 landing. The 1/144th scale model is just over 30 in. tall and it stands on a base with a plaque giving the date of the first lunar landing. Unfortunately, there is a slight difference between the block markings shown in the instructions and those used on the Saturn 5 which took the astronauts to the moon, but this could be easily rectified by examining a photograph of the actual rocket. Painting these black blocks is deceptively difficult – take care to see that the masking is positioned firmly over any corrugations.

The kit contains 79 pieces, and is very easy to assemble. The ends of the separate stages have a twist and lock device which ensures that the finished model is stable, and unlikely to drop apart if touched. It makes a most impressive sight, especially when compared with a 1/144th Jumbo Jet.

Airfix Saturn V to 1/144th scale at 21/6d. is remarkable value.

Three astronauts in the command module and also a 1/144th scale L.E.M. complete the Saturn model, which at 21s. 6d. is excellent value. No wonder Woolworths branches ran out of stock before the model shops had their 'bite' at distribution!

TAMIYA have also brought out two new space models, the *Command Module* and the *Lunar Module*. They are both 1/70th scale kits and the L.E.M. is supplied with two astronauts and a flag, and a piece of moon surface. The Bug kit costs 16/11d. and contains 52 pieces, and it is easy to build, providing care is taken over the legs. These have been designed so that they fold in, as though the module were inside the Saturn 5 rocket. The legs and aerials have been prepainted silver; but as the plastic is bright red underneath, it is necessary to touch up the parts after removing them from the sprue. There is a locking device for keeping the descent and ascent stages of the Bug together with glue; there is also a locking device on the Command module so that it can be attached to the L.E.M. as in the actual flights. Instructions, which were in Japanese, had plenty of diagrams, so we can recommend the kits as good value.

The *Command Module* can either be mounted on a stand or it can be *motorized* (motor is included in the total cost of 19/11d) to produce a model which 'flies' by means of a transparent propeller and nylon line suspended from the ceiling! Actual construction of the kit is not too difficult; but when it is motorised, it presents certain problems. The switch mechanism involves the battery contacts, which causes intermittent running of the motor, and as the motor revs at approximately 7,000 r.p.m., the vibration causes the switch to break and stop the motor completely. Vibrations also cause the side of the rocket, which opens to show the fuel tanks, to fall open during flight, as it is only held shut by a small pin on base of the capsule.

After experimenting, we managed to secure the switch, and the model flew very well, but we also found the motor has a fair rate of battery consumption.

Tamiya 'flying' space module is propelled by transparent prop at rear and rotates around the room when suspended to the ceiling. Centrifugal effect makes it shift heading in a realistic manner. Clever gimmick. How about a mobile LEM for docking ?

Model Engineer

January 2

Bridget is a powerful little 0-4-2 tank engine, running on the 7¼ in. gauge Derwent Valley Railway, and is the 'star' of the January 2 issue, in an article by K. Swan. This, the first issue of 1970 also features reports of two traction engine rallies.

January 16

The January 16 issue will contain notes on the making of models of old mine machinery, an article about a 5 in. gauge model 'River'-Class locomotive, and L. V. R. Haydock's constructional notes on the 15 c.c. 'Otter'-type petrol engine.

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February Issue

On Sale January 16

Messerschmitt Me 410 drawings by Ian Stair, plus close-up photo detail and FULLSIZE PLANS for Harry Purser's 36 inch 'Snipe' for single channel sports flying with W. I. Barrett's 'Phoebus' 30 inch glider on the flip side: plus 'Karatter', an elliptical surface 36 inch Rat Racer by K. Poulton and C. Thurley are four top-line drawing features. All-sheet A/2 model construction as described by the German aces, Peter Chinn's engine news and John O'Donnell's comments on engines for free flight plus regular features offer another great issue on sale January 16th.

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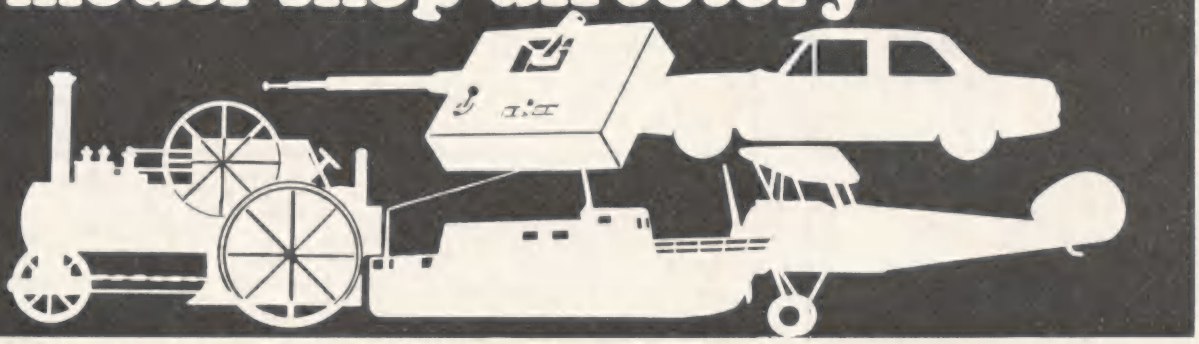

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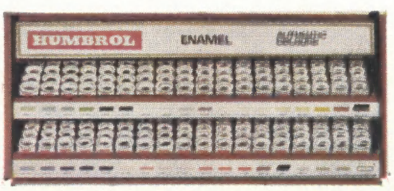

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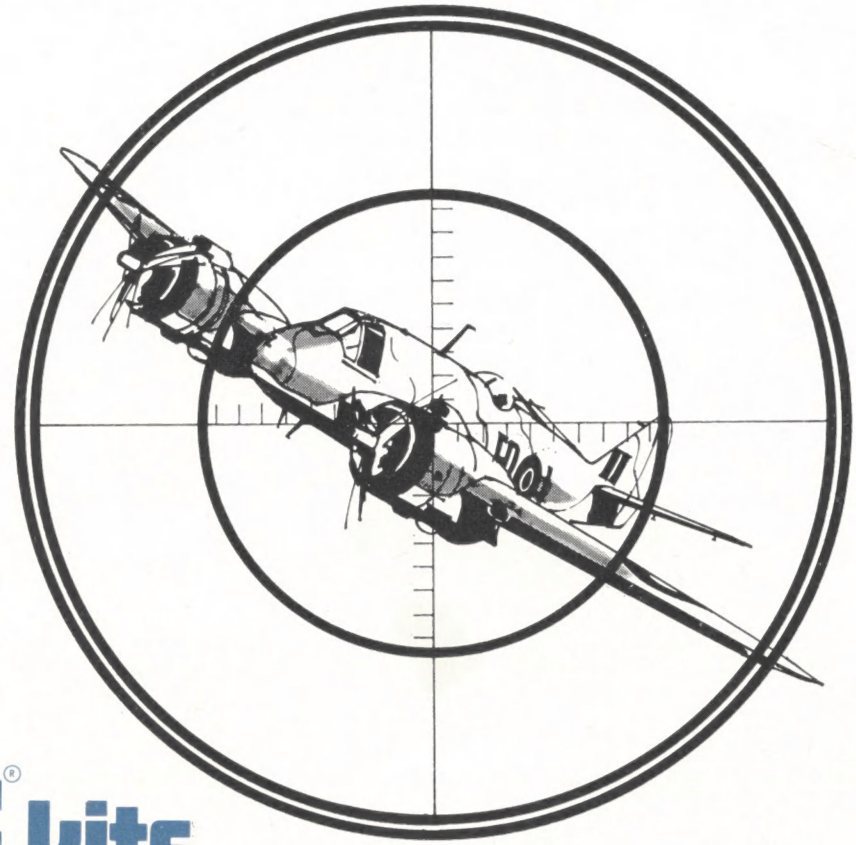

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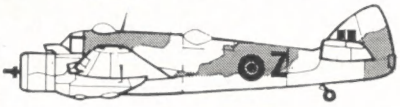

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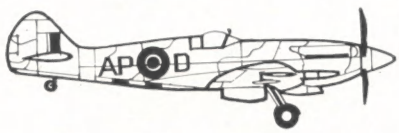

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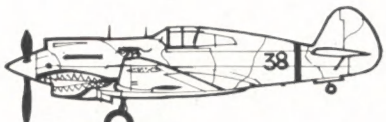

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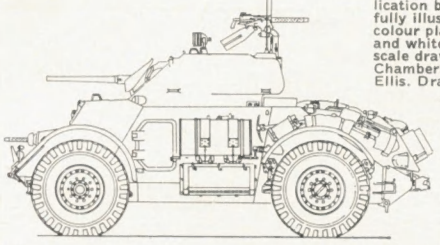

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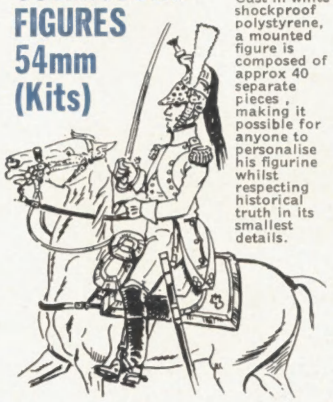

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